Indesit Company

TECHNICAL MANUAL

COFFEE MACHINE

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Service Manual
P0055 Coffee Machine - 2006

Edition
2006.08.28

Language
English

CONTENTS OF THIS MANUAL: NOTE FOR THE SERVICE ENGINEER.

This manual is a supporting document for technical personnel. It contains a description of the various product types, the general operating principle, and indications concerning assistance.

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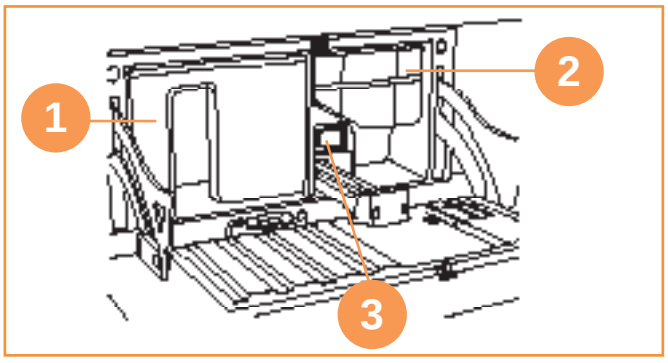
1. PRODUCT TYPE:

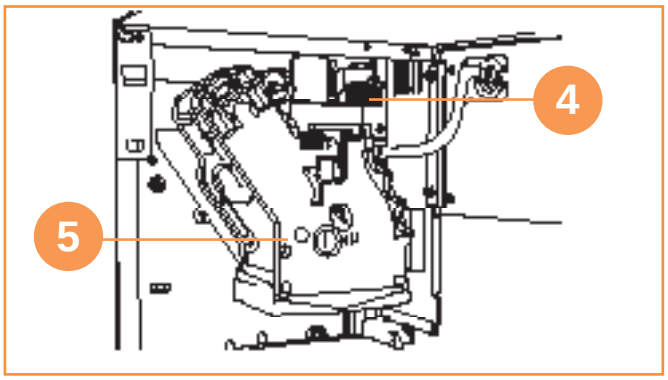
1.1. PRODUCT KEY:

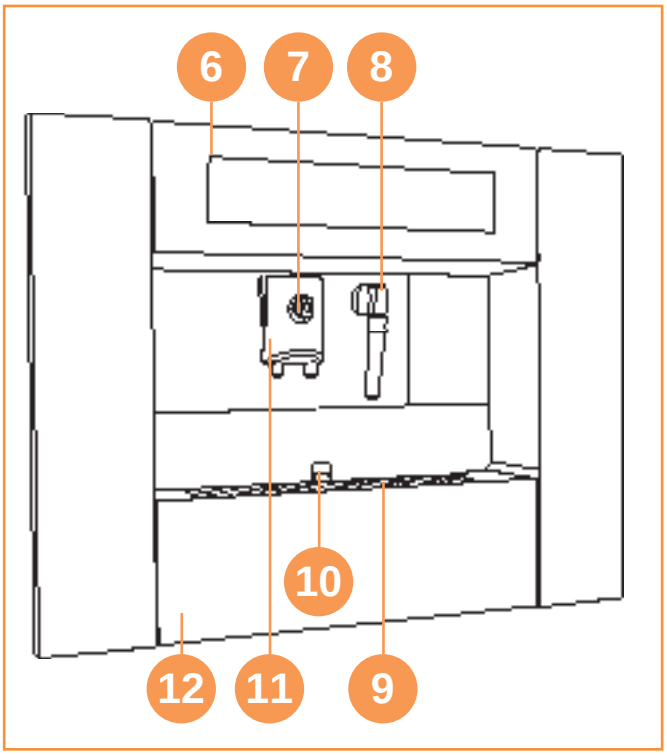
MCA 16:	MCA 15 NA P:
M=machine C=coffee A=automatic 16=index number	M=machine C=coffee A=automatic 15=index number N=North A=America P=connection to water supply

1.2. OVERVIEW:

Description of the appliance

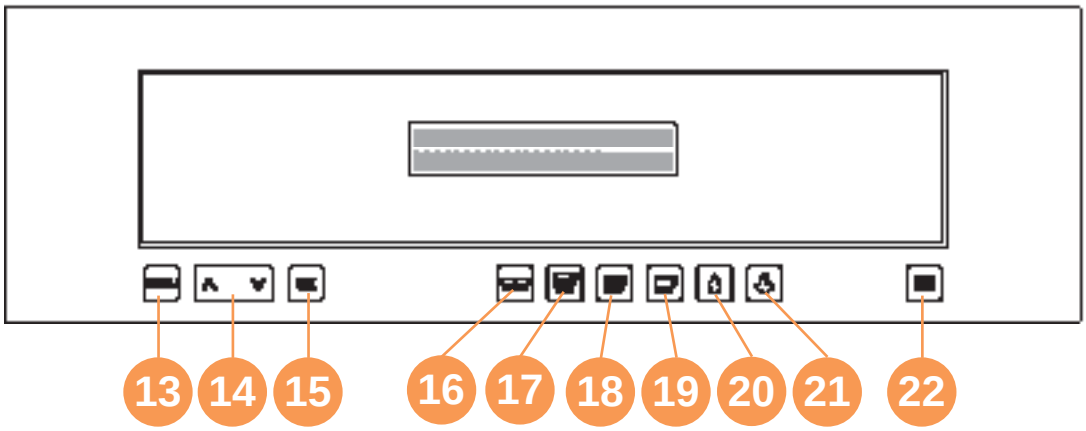






Ref.	description	Ref.	description
1	Water tank	7	SBS
2	Coffee beans hopper	8	Hot water/steam nozzle
3	Main power switch	9	Grid
4	Grind adjustment	10	Full tank float
5	Brew unit	11	Height adjustable dispenser
6	Front (control) panel	12	Drip tray

1.3. INTERFACE



Ref.	description	Ref.	description
13	PROGRAMMING/EXIT select button	18	NORMAL COFFEE select button
14	PAGES forward button	19	ESPRESSO select button
15	SELECT/CONFIRM button	20	HOT WATER select button
16	DOUBLE COFFEE selection button	21	STEAM select button
17	LUNGO COFFEE select button	22	DESCALE select button

1.4. GENERAL INFORMATION:

DOCUMENTATION REQUIRED:

The following technical documentation is required for repairs:
- Instruction booklet of specific model
- Technical documentation of specific model

TOOLS AND EQUIPMENT REQUIRED:

As well as the standard equipment, the following tools are required:
- Torx screwdrivers
- Crosshead screwdrivers
- 1 Digital thermometer with reading range of more than 150°C
- Must be suitable for measurements in liquids and on surfaces

SAFETY WARNINGS:

Before working on the appliance, read the instruction booklet.
Observe all statutory regulations related to repairs of domestic appliances.
Always disconnect the power supply before repairing the appliance;
it is not sufficient to switch off the main power switch to eliminate electric shock hazards.

1.5. PRODUCT TECHNICAL DATA:

Power supply and consumption:	230 V~; 50 Hz; 1250 W 120 V; 60 Hz; 1250W 100 V; 60 Hz; 1250 W
Safety devices	2 safety thermostats set at 170°C with heat exchanger
Temperature control	NTC sensor
Coffee heating element	Stainless steel heat exchanger - (1090W), for coffee or hot water.
Steam heating element	Aluminium tube heat exchanger - (1000W) for steam production (rapid evaporation)
Pump	Ulka vibrating pump; 230V; 50 Hz; 48 W 120V; 60 Hz; 41 W 100V; 50/60 Hz; 55 W
Release valve	Pressurised air release valve with compensation valve
Water filter	Located in the water reservoir
Gearmotor supplementary heating element	437W - 230 V; 275W - 100/120 V approx.
Coffee grinder (burr plate)	Threaded spindle in brass, ceramic burrs
Motor	230 V / 120 V / 100 V DC
Power draw	During heating: Approx. 5.6 A (230 V); 9 A (120V); 11 A (100V)
Power draw in stand-by	Approx. 20 Watt/h
Cup heater power draw	8 Watt (at operating temperature)
Main pump	15 bar
Dimensions WxDxH (mm)	285/400/375
Weight	Approx. 11 kg
Coffee hopper capacity (in beans)	Approx. 300 gr
Water reservoir capacity	Approx. 2 l at maximum level
Heat exchanger volume	Approx. 1.0 cm3 (10 ml)
Water filling time	Approx. 10 sec. at initial power-on.
Heating time	Approx. 1.5 min
Steam production	Instant

2. OPERATING LOGIC

2.1. OPERATING MODES:

The appliance can operate in the following modes:

- User Programming Mode: From the user menu you can change appliance programming as described in the instruction booklet.
- Diagnostics Mode: this mode allows service engineers to adjust operating and service parameters. This menu contains all the user menu items plus a series of more complex programming options reserved for service personnel.
- Test Mode: Used by service personnel to check operation of the appliance and its main components.

2.2. USER PROGRAMMING MODE

This mode is accessed by means of the menu button (see instruction booklet)

2.2.1. MENU OPTIONS

The following options can be programmed by the user:

ENERGY SAVING
RINSING
LANGUAGE
CONTRAST
WATER HARDNESS
WATERFILTER
TEMPERATURE
PROGR. COFFEE LENG.
PROGR. WATER AMOUNT
PROGRAM STEAM TIME
AROMA SMALL COFFEE
AROMA COFFEE
AROMA LARGE COFFEE
PREBREWING
TOTAL COFFEES
TIMER
CLOCK
AUTOMATIC ON/OFF
CLOCK TIME
ON/OFF TIME
SHOW CLOCK TIME

2.3. GROUND COFFEE DOSAGES

The coffee dosage depends on the rpm of the coffee grinder (controlled by a sensor) and the mechanical grind setting (by means of the adjuster knob).

2.3.1. DOSAGE PROGRAMMING FOR THE USER (AROMA FUNCTION)

You can select the quantity of ground coffee for each coffee type (espresso, caffé, lungo coffee) by setting the “Aroma” parameter. This serves to make stronger or weaker coffee.

Aroma Type:
- 0: LIGHT (grinder speed of 45 rpm)
- 1: REGULAR (grinder speed of 50 rpm)
- 2: STRONG (grinder speed of 55 rpm).

2.3.2. DOSAGE PROGRAMMING FOR THE ENGINEER

In “Test” mode you can increase the rpm of the coffee grinder in correspondence with each aroma type (LIGHT, REGULAR, STRONG) by 2.5 rpm.

The available levels are as follows:

Level/Aroma type	LIGHT	REGULAR	STRONG
0	45	50	55
1	47.5	52.5	57.5
2	50	55	60

2.4. FACTORY SETTINGS

The machine is delivered with the following factory settings:

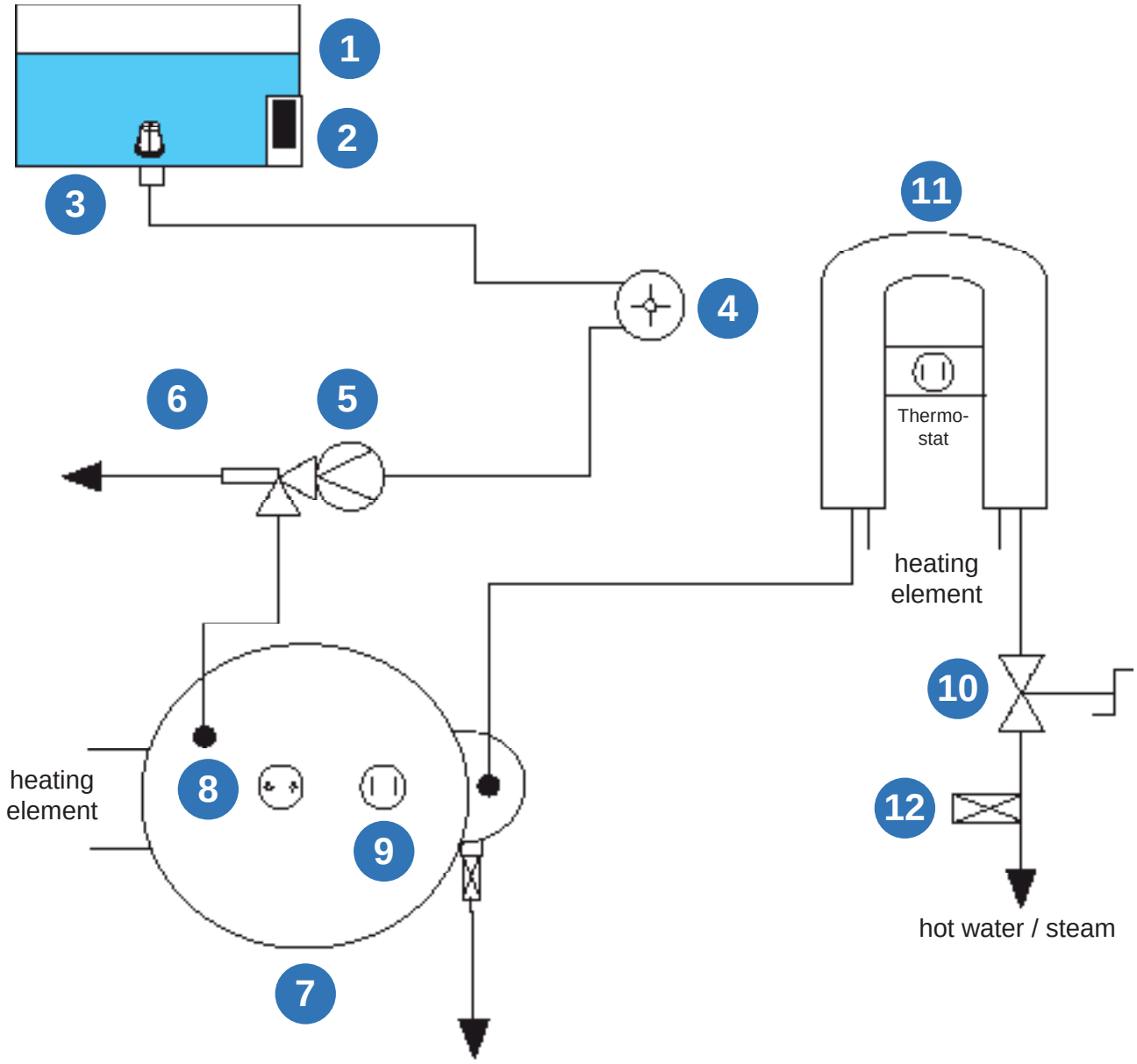
Temperature level = 2 (Medium)
Water hardness = 3 (High)
Stand-by delay = 3:00
Prebrewing = 1 (short)
Espresso Quantity = 110
Caffé Quantity = 170
Lungo quantity = 290
Espresso Aroma = 1 (Regular)
Caffé aroma = 1 (Regular)
Lungo Aroma = 1 (Regular)
Power-on time = 0:00
Power-off time = 0:00
Display contrast = 6 (60%)
Water filter = 0 (No)
Clock active = 0 (No)
Time visible = 0 (No)
Rinses permitted = 1 (Yes)

Note several factory setting parameters depend on the language set on the appliance:

- if any European language is selected the appliance will present EUROPE settings
- selection of USA English or Canadian French results in US settings.

	EUROPE	USA
Espresso Quantity	**110**	**110**
Caffé Quantity	**170**	**285**
Lungo Quantity	**290**	**540**

2.5. FUNCTIONAL WATER CIRCUIT DIAGRAM



	Component	Function
1	Water reservoir	Water supply
2	Float	Water empty detection
3	Water filter	Elimination of solids from water
4	Turbine	Pulse flow measurement, adjusts quantity
5	Pump	Water flowrate / pressure (15 bar)
6	Pressure relief valve	Protects the water circuit from overpressure conditions (valve opens at 17-19 bar)
7	Heat exchanger / heating	Provides heating for delivery of water, coffee and steam
8	Temperature sensor	Transmits current temperature values to the electronic control system
9	Overtemperature thermostat	In the event of overheating, disconnects appliance power supply
10	Hot water / steam supply valve	When opened delivers hot water or steam
11	Tubular boiler	For steam delivery
12	Steam/hot water solenoid valve	Opens if wand is blocked

2.6. SBS VALVE

Beverage dispensing

The SBS delivery valve (see fig. 2), which is adjustable using the knob, serves to alter (increase or decrease depending on the knob setting) the flowrate of water for brewing in the unit.
This serves to alter the coffee brewing time (extraction time) and consequently the intensity of flavour, while maintaining the quantity of crema constant.

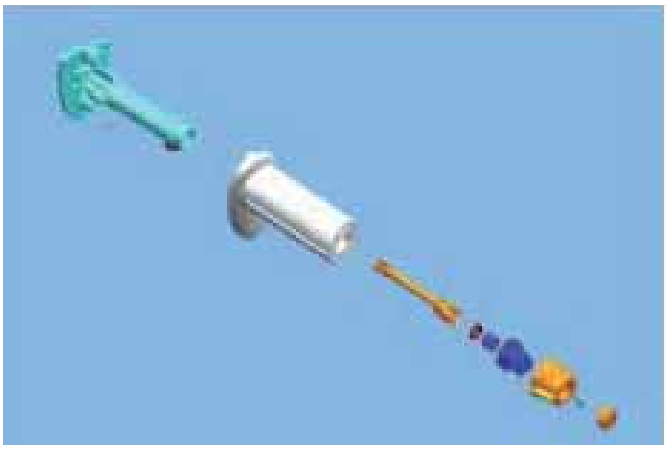


Fig. 2

Function

With the SBS valve in its open position, an accumulation of coffee is obtained inside the diaphragm valve due to the low counter-pressure of the SBS valve. Consequently the membrane valve needle remains in the fully open position due to resistance of the spring. The coffee is delivered rapidly (see Fig. 3).
With the SBS valve in its closed position, an accumulation of coffee is obtained on the valve diaphragm resulting in a pressure build-up inside the valve. The spring succumbs to the counter-pressure and the valve element consequently reduces the flow of coffee (see fig. 4).

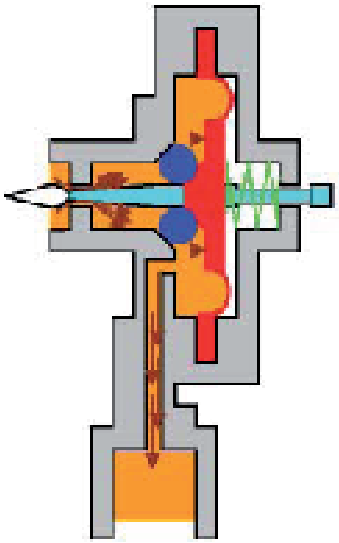


Fig. 3

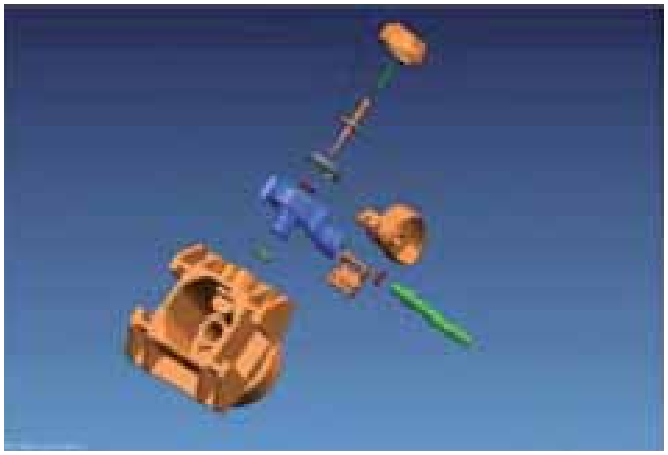


Fig. 1

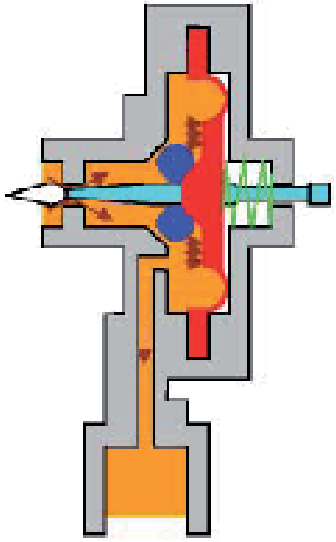


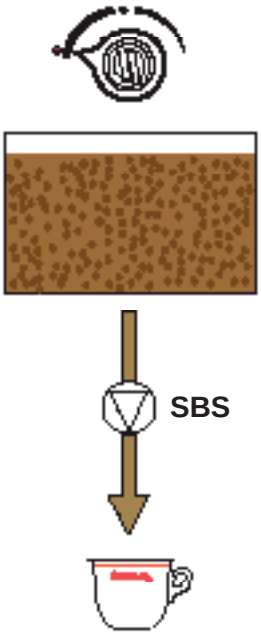
Fig. 4

SBS valve functional check

To check the correct operation of the SBS valve make a lungo coffee and, while it is being prepared, check the difference in the rate of delivery from the maximum to the minimum positions.

The difference in delivery rate is approx. 2.5 times (and therefore VERY obvious!!).

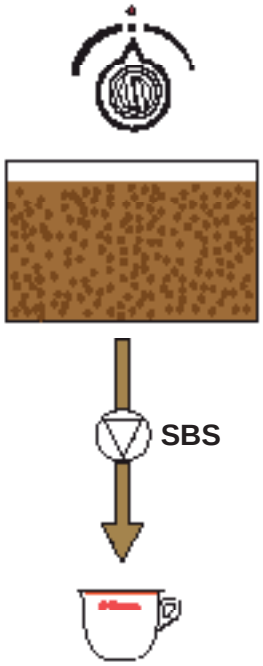
Knob in MAX position



-> Coffee dispensing fast
-> Efficient coffee extraction
-> Medium counterpressure

(Light coffee)
CREME COFFEE

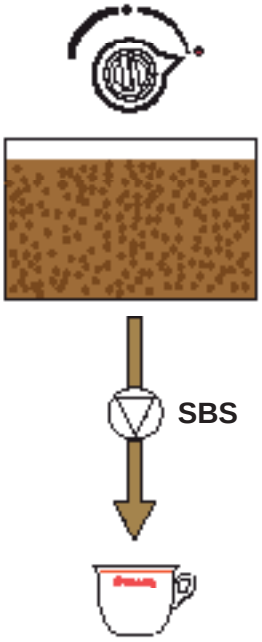
Knob in MED position



-> Coffee dispensing medium
-> Efficient coffee extraction
-> Medium-high counterpressure

(Medium-strong coffee)
ESPRESSO

Knob in MIN position



-> Coffee dispensing slow
-> Efficient coffee extraction
-> High counterpressure

(Strong coffee)
RISTRETTO

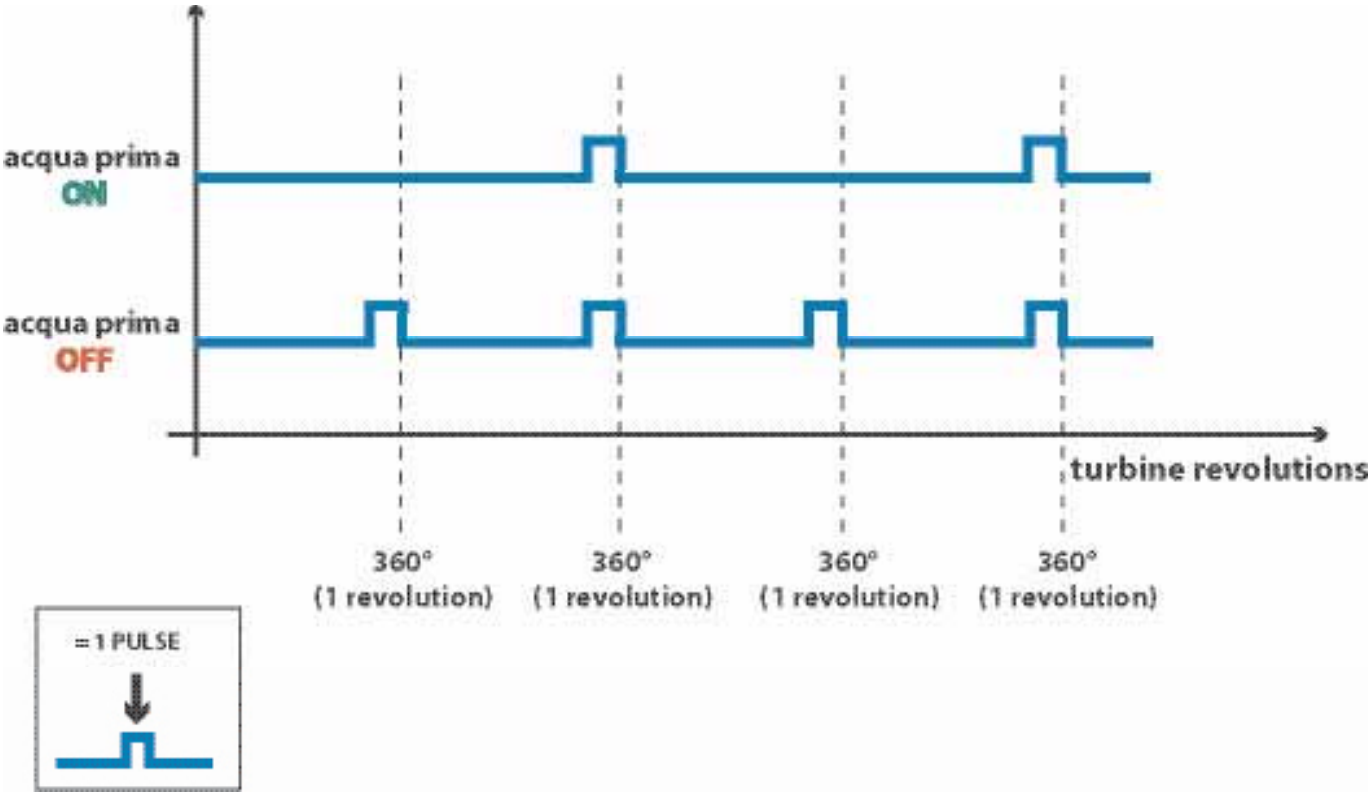
2.7. AQUA PRIMA

If the “aqua prima” filter is selected from the user menu or the control panel, the system’s water metering logic functions as follows:

If the “aqua prima” function is **enabled**, the electronic control system performs a pulse count of the turbine, recording **one pulse every 2 revolutions**.

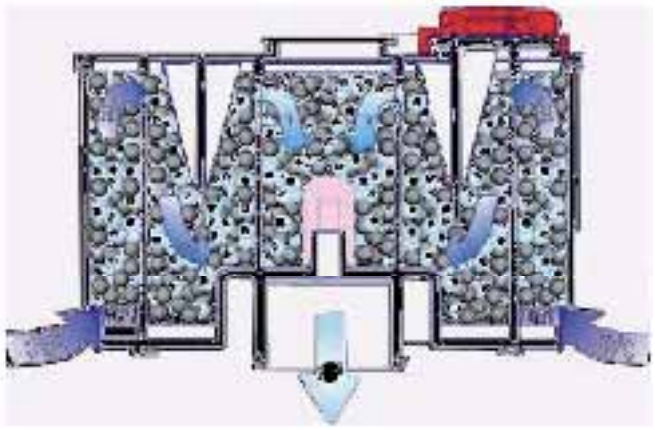
If the “aqua prima” function is **disabled**, the electronic control system performs a pulse count of the turbine, recording **one pulse every revolution**.

The graph in the figure below illustrates this function:

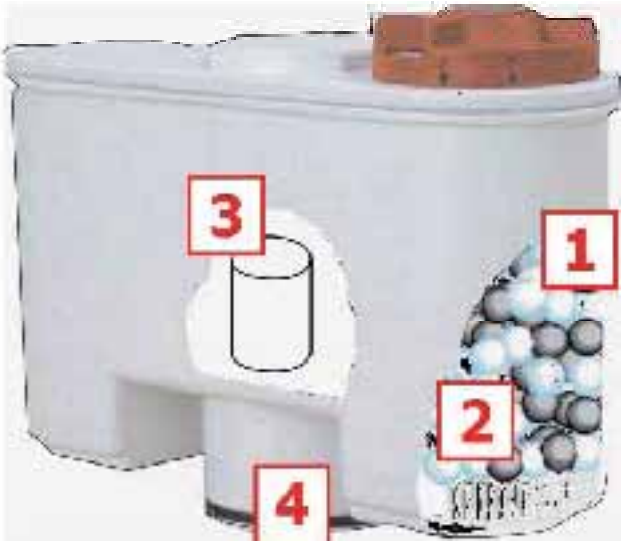


The AQUA PRIMA filter

The “Aqua prima” filter is a softener filter that significantly reduces water hardness, thus reducing the risk of problems caused by lime scale.
In this context, it should be considered that water is an essential element in brewing a perfect cup of coffee, on a par with the coffee blend and roast: the water must therefore always be perfectly clear and fresh.
The following section describes the operating modes and features of the filter.



The water used to brew the coffee is filtered immediately prior to delivery.
This strategy guarantees that the water is always optimal for perfect coffee brewing.
The Saeco “Aqua Prima” filter purifies the water in four stages to achieve truly unique coffee flavour.



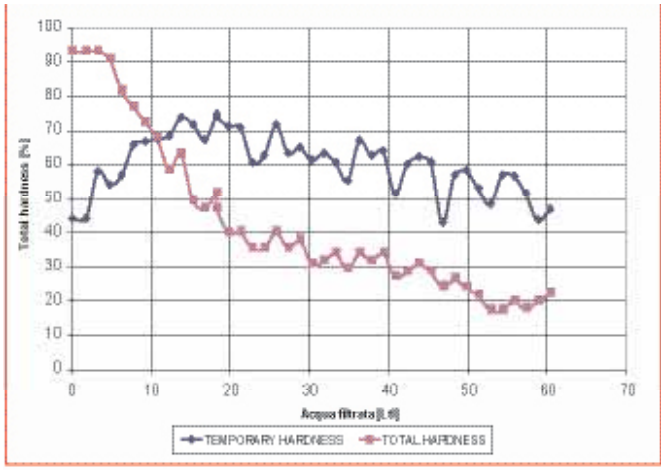
1. The activated carbon eliminates undesirable odours and substances from the water, such as chlorine. The silver coating of the activated carbon prevents the reproduction of microbacteria.

2. The ion exchanger reduces lime scale deposits and eliminates heavy metals and suspended substances from tap water.

3. A special porous filter intercepts undesirable microparticulate.

4. The corpuscular filter, used as a connection between reservoir and appliance, filters the water, retaining any suspended substances and impurities.

As seen in the following graph, the “Aqua Prima” filter reduces water hardness by up to 50 %.



The “Aqua Prima” filter purifies up to 60 litres of water or around 600 cups of coffee.
It should be replaced every 3 months.
The need to replace the filter is shown by an indicator light or display message.
If the machine is not equipped with these control devices, always observe the expiry date printed on the filter packaging

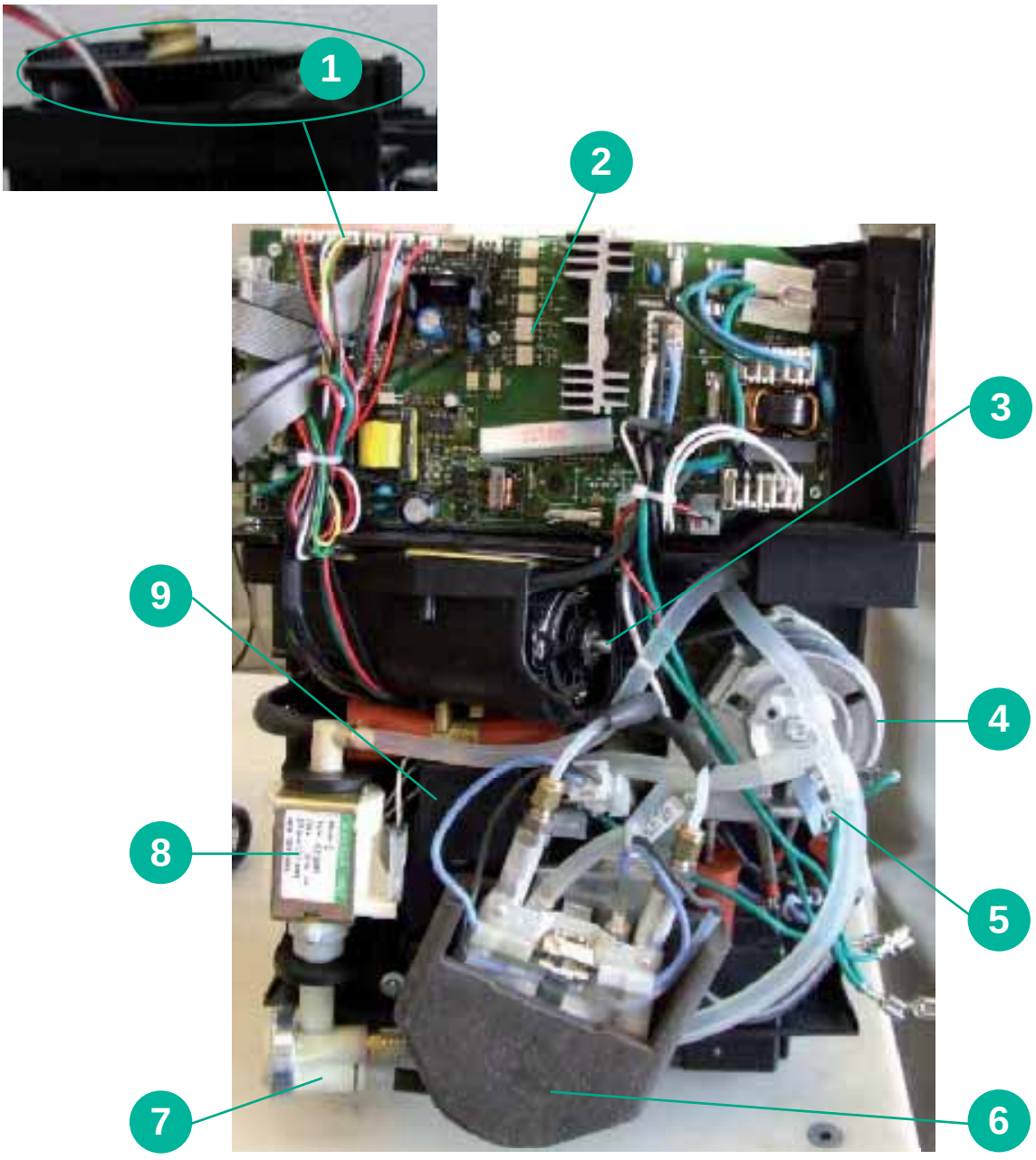
All the parts of “Aqua Prima” filter system are tested for contact with food.

The “Aqua Prima” filter is fully recyclable and hence environmentally friendly.

The “Aqua Prima” filter packaging complies with recycling standards as confirmed by the “green dot” marking.

3. COMPONENTS:

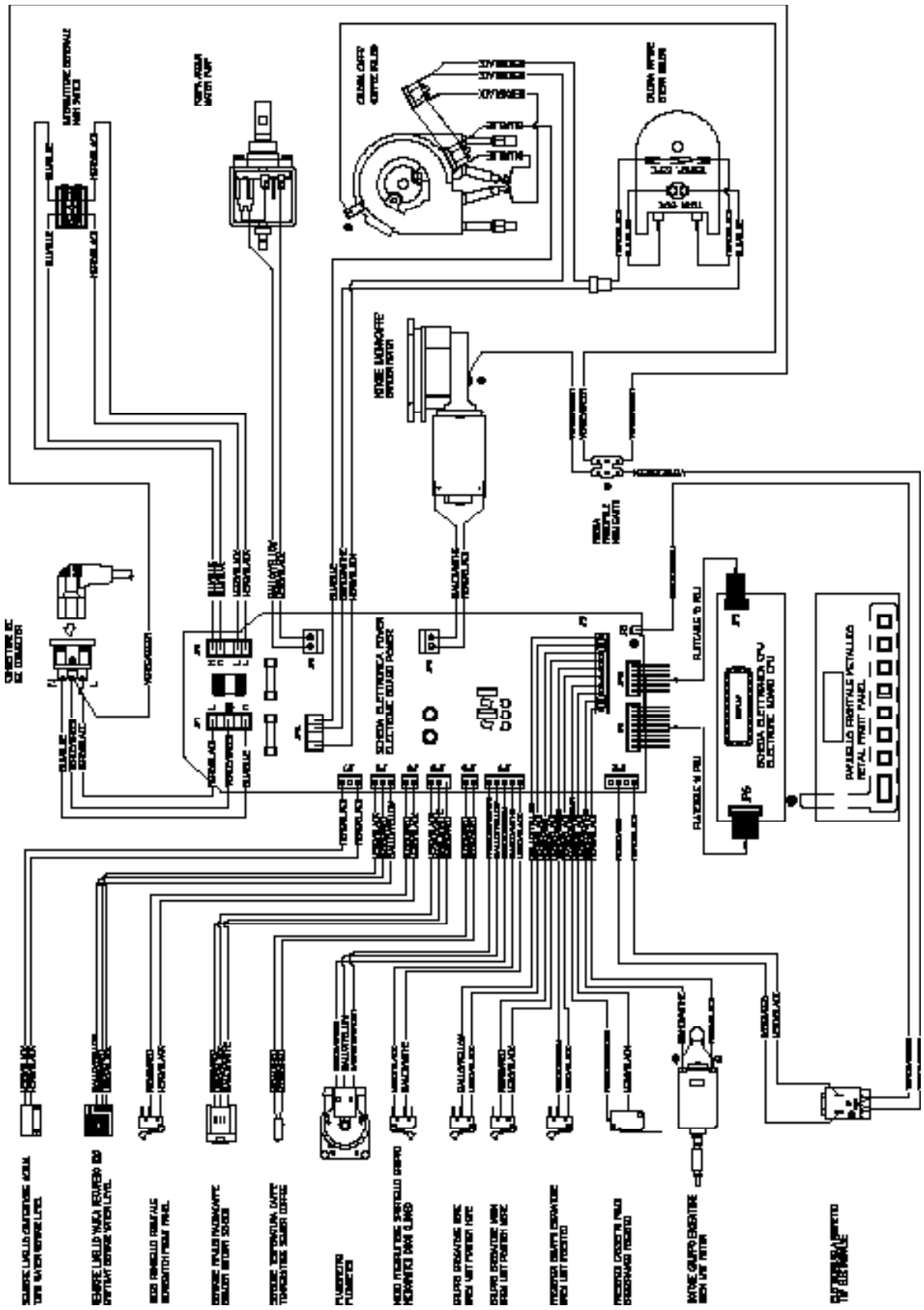
3.1. INTERNAL COMPONENTS



Ref.	description	Ref.	description
1	Coffee grinder	6	Steam boiler
2	Power Board	7	Relief and compensation valve
3	Coffee grinder motor	8	Pump
4	Boiler	9	Solenoid valve
5	Thermostat		

4. WIRING DIAGRAMS:

4.1. WIRING DIAGRAM



5. ASSISTANCE:

5.1. DIAGNOSTICS MODE

Diagnostics mode includes all the options of the user programming function plus the “programmer”* menu, whereby service personnel can access protected parameters that are not accessible by the end user.

Some of these parameters are editable, others are read-only.

To access diagnostics mode:

Switch on the appliance and press the ESPRESSO-HOT WATER-ESPRESSO buttons in sequence within an interval of 3 seconds

DIAGNOSIS-menu
1 LARGE COFFEE (N°IMPULSES)
1 SMALL COFFEE (N°IMPULSES)
1 COFFEE (N°IMPULSES)
PROGR. WATER AMOUNT
PROGRAM STEAM TIME
PARAMETER K1
PARAMETER K2
TEMPERATURE NORMAL
TEMPERATURE HIGH
TEMPERATURE 1°COFFEE
TOTAL GROUNDS
STOP GROUNDS
TOTAL WATER
WATER DECALCIFY
WATERFILTER
H2O SINCE MSG. DESC.
FLOWRATE l/h
PUMP REGULAT.
WATERRESERVE COUNTER
WATERRESERVE STOP
NUMBER
STATUS
DESCALING NUMBER
DESCALING STATUS
MACHINE STATUS
PRODUCTION DATE DAY
PRODUCTION DATE MONTH
PRODUCTION DATE YEAR
SERVICE DATE DAY
SERVICE DATE MONTH
SERVICE DATE YEAR

To quit diagnostics mode

Press the menu button one or more times until “self-diagnostics” is shown on the display. Alternatively switch off the machine and then switch it on again.

*Note: These operations can be performed also by means of a specific programmer.

5.2. TEST MODE

This menu provides the facility to check operation of the main components of the machine.

To access test mode:

To access this menu switch the machine on and select the following sequence STEAM - DECALCIFY - STEAM- DECALCIFY within an interval of 3 seconds.
When you access Test mode a window will be displayed containing all the information on the installed software version.
The user can access the various different levels by pressing the MENU button. The Menu levels can be consulted in the sequence M1, M2, M3, M4.

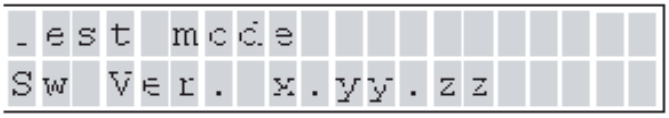


Figure 1. Test mode opening screen.

Level M1: Keypad test.

This level allows the user to check operation of the keypad.
The first line shows a description of the level.
The second line briefly shows the number corresponding to the selected button.

Figure 2. Level M1 window.

Level M2: I/O test

This level allows the user to check the I/O system (except in relation to the coffee grinder, which is covered by a separate menu level). The first line shows a description of the level and a space for analog information, if present (red circle).

The second line shows the active load on the left (blue circle) and digital information on the right (green circle).

Figure 3. Level M2 window.

Microswitches and sensors check

NUMBER	DESCRIPTION	ACTIVE	INACTIVE	NOTES
1	Gearmotor WORK microswitch	Dispenser in WORK position	Dispenser not in WORK position	
2	Gearmotor HOME microswitch	Dispenser in HOME position	Dispenser not in HOME position	
3	Front control panel microswitch	Panel closed	Panel open	
4	GROUNDS DRAWER microswitch	Grounds drawer present	Grounds drawer not present	
5	BREW UNIT microswitch	Present	Absent	
6	DOOR microswitch	Door open	Door closed	
7	FLOWMETER			The service engineer can check the pulses
8	WATER LEVEL in reservoir	Level OK	Level LOW	
9	WATER ALARM microswitch	Presence of water on base of machine	No water on base of machine.	
M	Coffee hopper empty	No coffee present	Coffee must be present.	This information is derivative and not obtained by hardware.
R	CLOCK (seconds advance)	Even seconds	Odd seconds	Must flash at 1 HZ

Check COMPONENT FUNCTIONS

The user can activate functions by pressing the buttons as shown in the following table. To deactivate functions, press any button.

The active load is displayed on the second line (blue circle).

Note: certain loads are equipped with safety devices that may deactivate them to avoid possible damage.

BUTTON	FUNCTION	SAFETY	INFORMATION
UP	The brew unit moves up	WORK microswitch must be deactivated. The grounds drawer microswitch must be active. The door must be closed	Motor current [mA]
DOWN	The brew unit moves down	HOME microswitch must be deactivated. The grounds drawer microswitch must be active. The door must be closed	Motor current [mA]
OK	Coffee boiler heating element powered		Temperature [°C]
DOUBLE COFFEE	Steam boiler heating element powered		
LUNGO COFFEE	Pump *		No water supplied
CAFFÉ	Pump + water supply solenoid valve *		Water supplied
ESPRESSO	Water supply valve		
HOT WATER	Display backlighting		
STEAM	Display contrast		
DECALCIFICATION	Water supply solenoid valve		

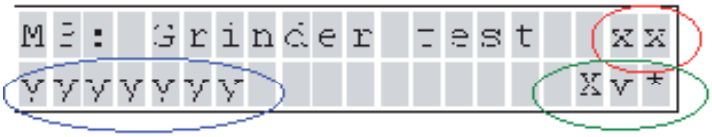
*Note: in the plumbed-in configuration the water supply solenoid valve opens automatically when the pump is started.

Level M3: Tests on coffee grinder

This level allows the service engineer to check operation of the coffee grinder.

The first line shows a description of the level and a space for analog information, if present (red circle).

The second line shows whether or not the load is active (blue circle). Additional information is shown in the red circle and the flashing “X” (green circle).



When the coffee grinder is operating (UP button) the speed is shown in rpm (red circle) and the “X” flashes (green circle).

“v” can show one of the Aroma levels: 0 - 1 - 2 (see heading 2.3.2). The value can be edited with the DOWN button and saved by pressing OK.

If the value has been edited but not saved the “*” symbol will be displayed at the end of the second line. When the value is saved, the “*” symbol disappears.

Level M4: Jumpers

In this section you can check the jumper configuration, i.e. the presence or absence of certain jumpers.

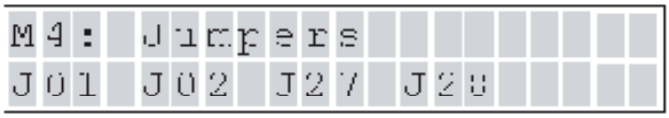


Figure 1. e.g.: all jumpers present

Figure 2. e.g.: only jumper JP27 present

Note: the presence of JP27 is required for the plumbed-in configuration: in this case the “water connection” option appears automatically in the user menu, although it must still be activated if it is to be used.

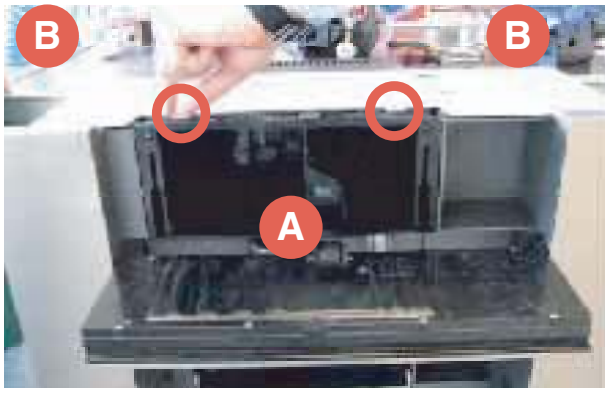
How to quit Test mode.

Switch off the machine and then switch it on again.

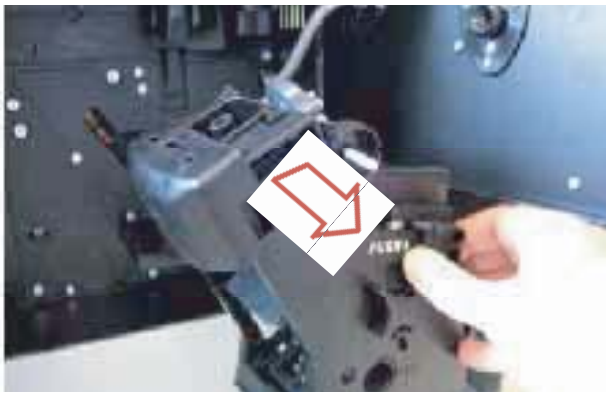
5.3. DISASSEMBLY OF THE OUTER CHASSIS

1. Remove the drawer

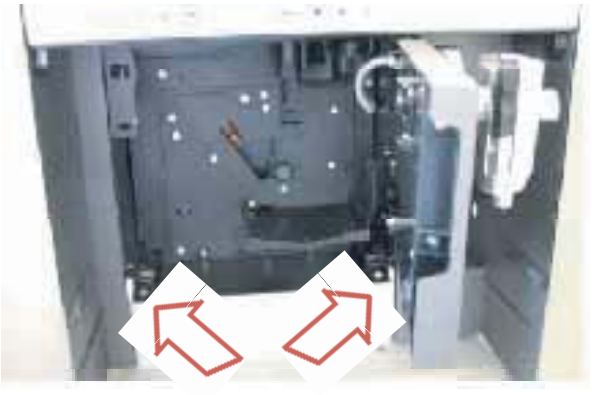
2. Remove the drawer support



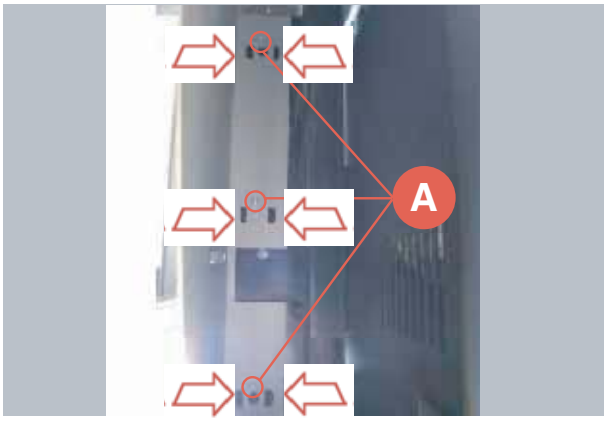
3. Undo screws “A”



4. Open the front door and remove the coffee assy by pressing the button shown in the photo

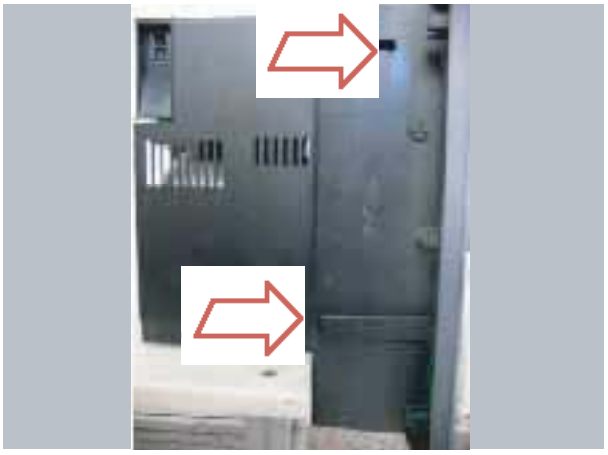


5. Remove the screws shown in the photo

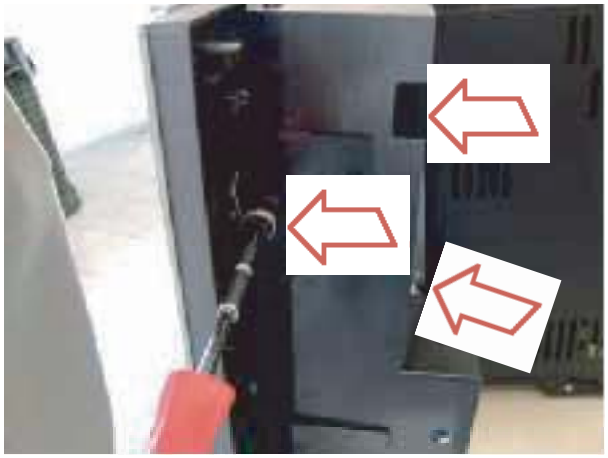


6. Undo screws “A” and press the interlocking tabs then push them outwards (this operation must be performed also on the other side of the chassis)

7. Slide the appliance out of the outer chassis as shown in the photo



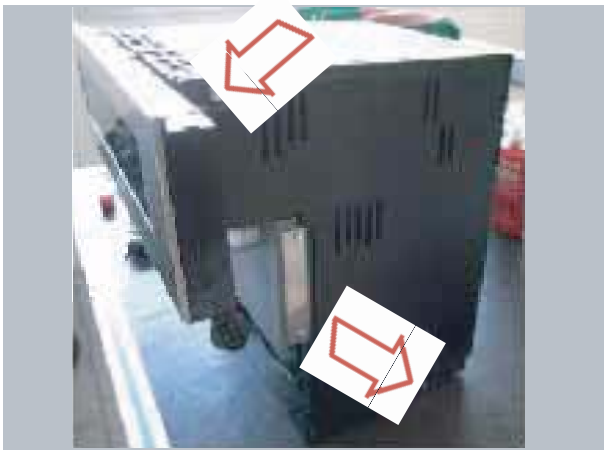
8. Undo the screw shown in the photo to remove the LH insert



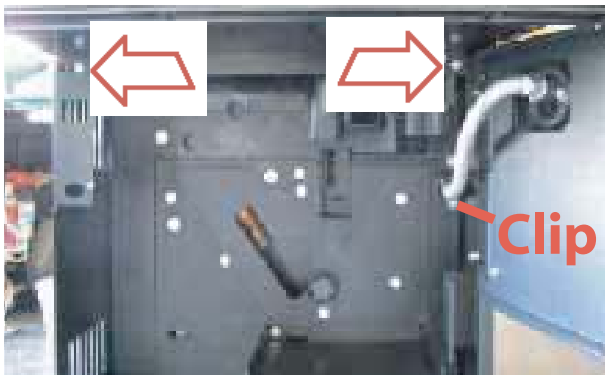
9. Undo the screws shown in the photo to remove the RH insert

10. To remove the gear for opening of the front panel detach the spring and withdraw the gear

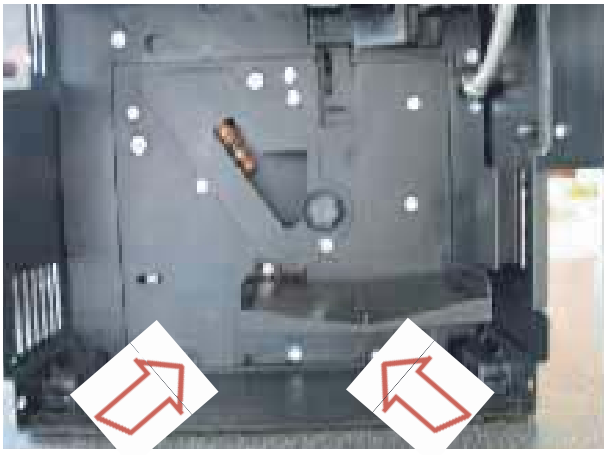
5.4. REMOVING THE CASE AND COMPONENTS SUPPORT



1. Undo the screws shown in the photo on the RH and LH sides

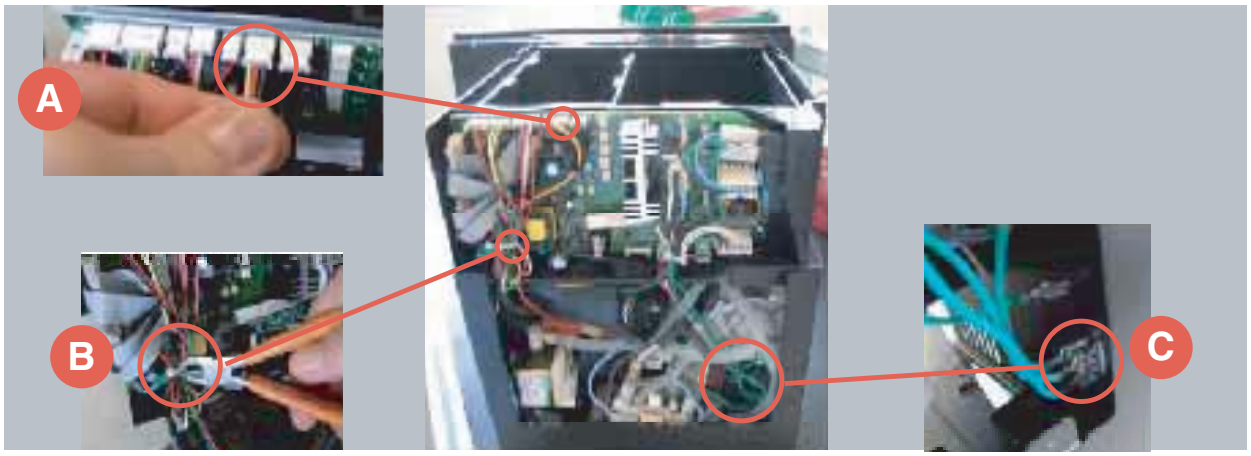


2. Undo the screws (shown above and right) and detach the steam hose by removing the Clip.



3. Undo the screws shown in the photo at the rear of the machine

4. Remove the cover as shown in the photo

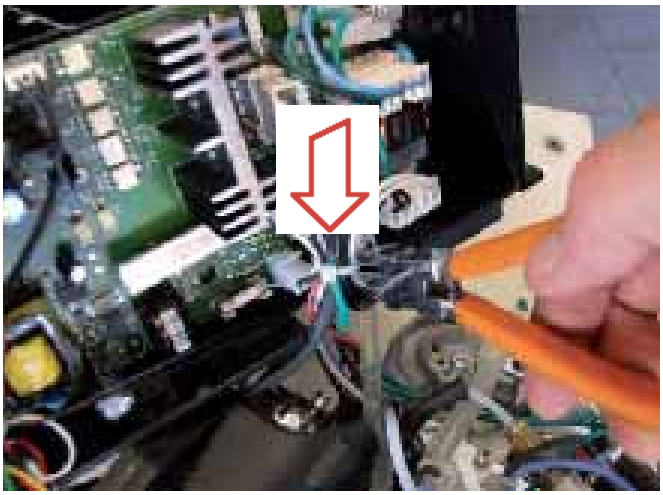


5. Remove wire tie “B” and extract connector “A” and Fastons “C”

6. Lift the components support clear of the chassis

7. Chassis

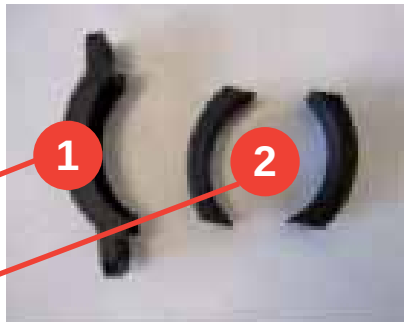
8. Plate



9. Remove the wire tie

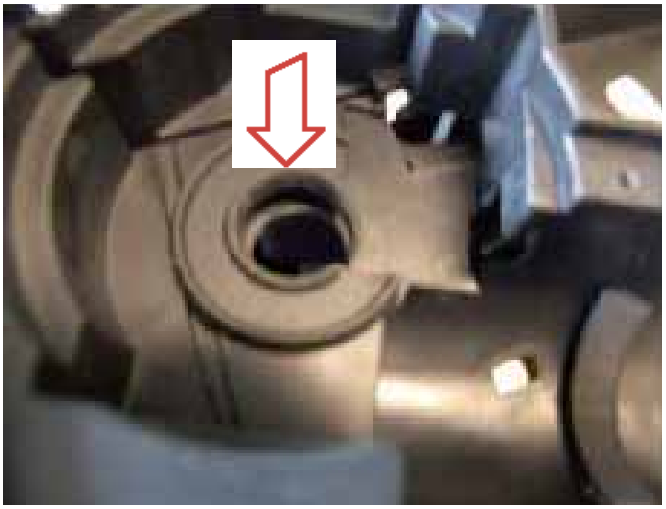
10. Remove the upper plate by lifting it

5.5. REMOVING THE COFFEE GRINDER



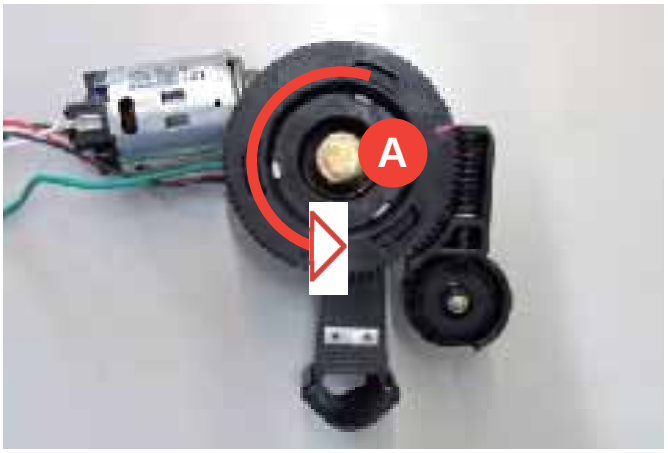
1. Undo the screws shown by the arrow (Note: When reassembling the coffee grinder remember to refit the two vibration dampers “1” which are wrapped around motor “2”)

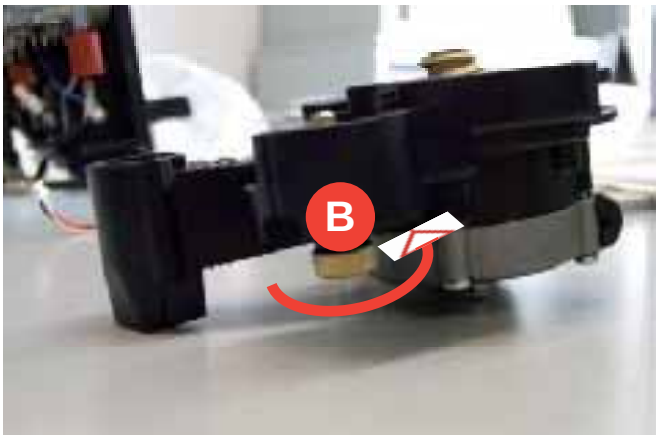
2. Remove the coffee grinder

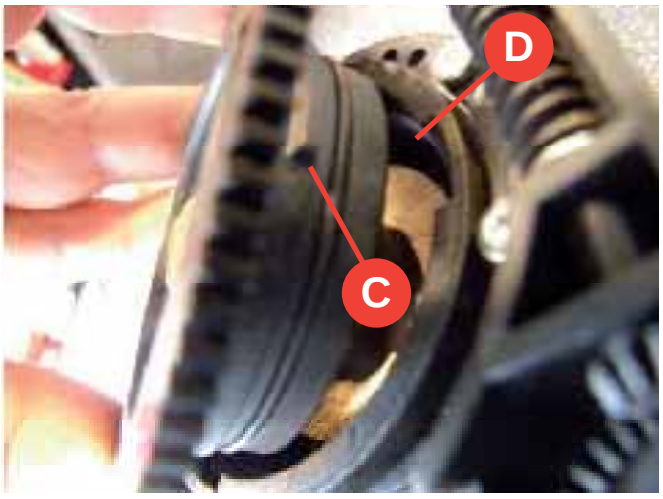


3. When reassembling the coffee grinder use caution when repositioning the seal shown in the photo

Disassembling the grinder burrs



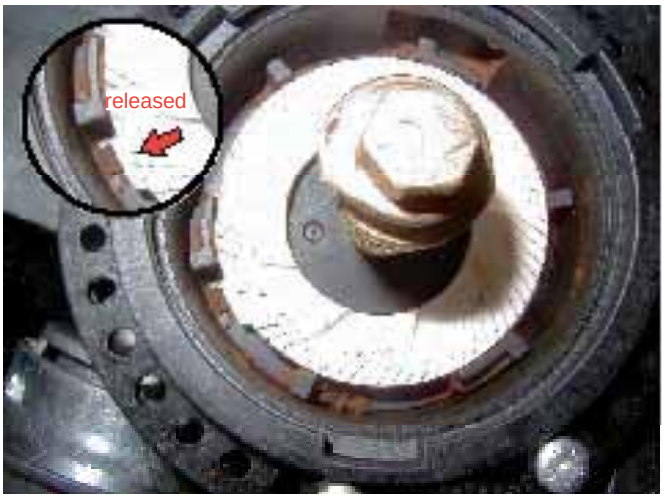


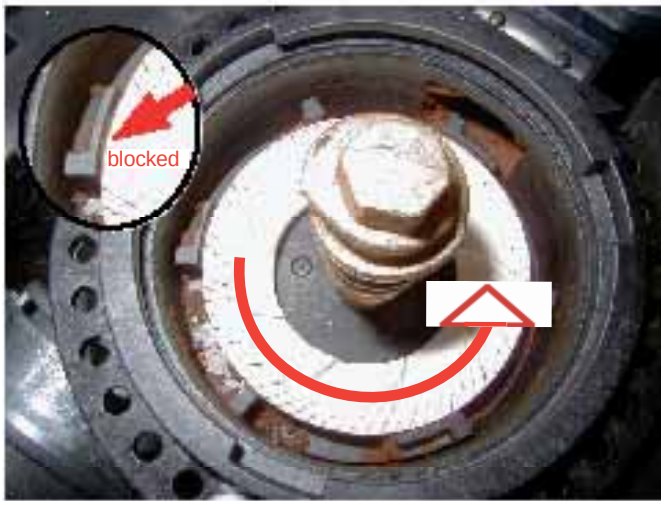


4 To remove the upper burr “A” (disassemble the pack) turn it counterclockwise as shown in the first photo, with the aid of the ringnut “B” until tooth “C” is aligned with slot “D”

(upper burr disassembly)

Once the burr is detached it can be removed from its support.





After releasing the lower burr it can be removed from the relative support.

(lower burr disassembly)

Remove all coffee residues with a small flat-bladed screwdriver, a jet of compressed air, and a vacuum cleaner.

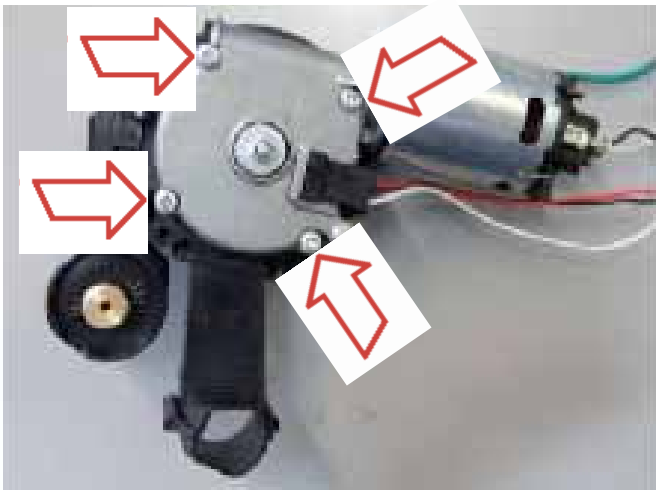
Rotate the burr anticlockwise, using a small flat-bladed screwdriver to prise it off as shown in the first figure.

The upper and lower burrs are made of ceramic material and are identical.

N.B:

To reassemble the burrs perform the disassembly steps in reverse sequence

Disassembly of the coffee grinder motor



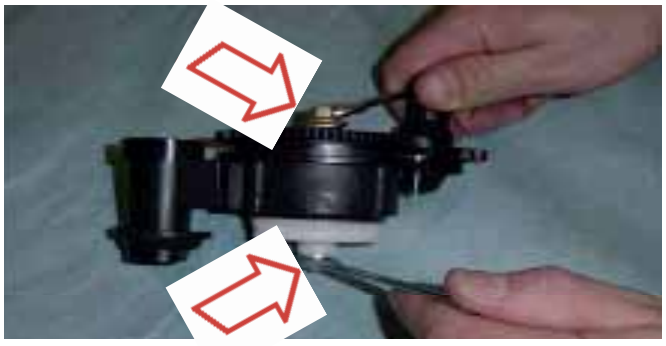
1. Undo the four fixing screws of the motor flange.

2. Remove the sensor support from the flange seat with the aid of a small screwdriver (as shown in the figure).

3. Remove the rubber plug from the motor flange.

4. Remove the sensor from the flange seat by pressing on the anchoring tab.

5. Disconnect the motor power cables.



6. If the gear is damaged, remove it using a 10 mm wrench and a 7 mm wrench to unscrew the locknut.

7. Fit the new gear and mesh it with the spindle pinion; now secure the gear with the washer and locknut.

8. Tighten the nut onto the brass spindle shaft with the 7 and 10 mm wrenches.

9. Apply grease to all the gear teeth..

10. Smear the grease uniformly and generously over the entire gear.

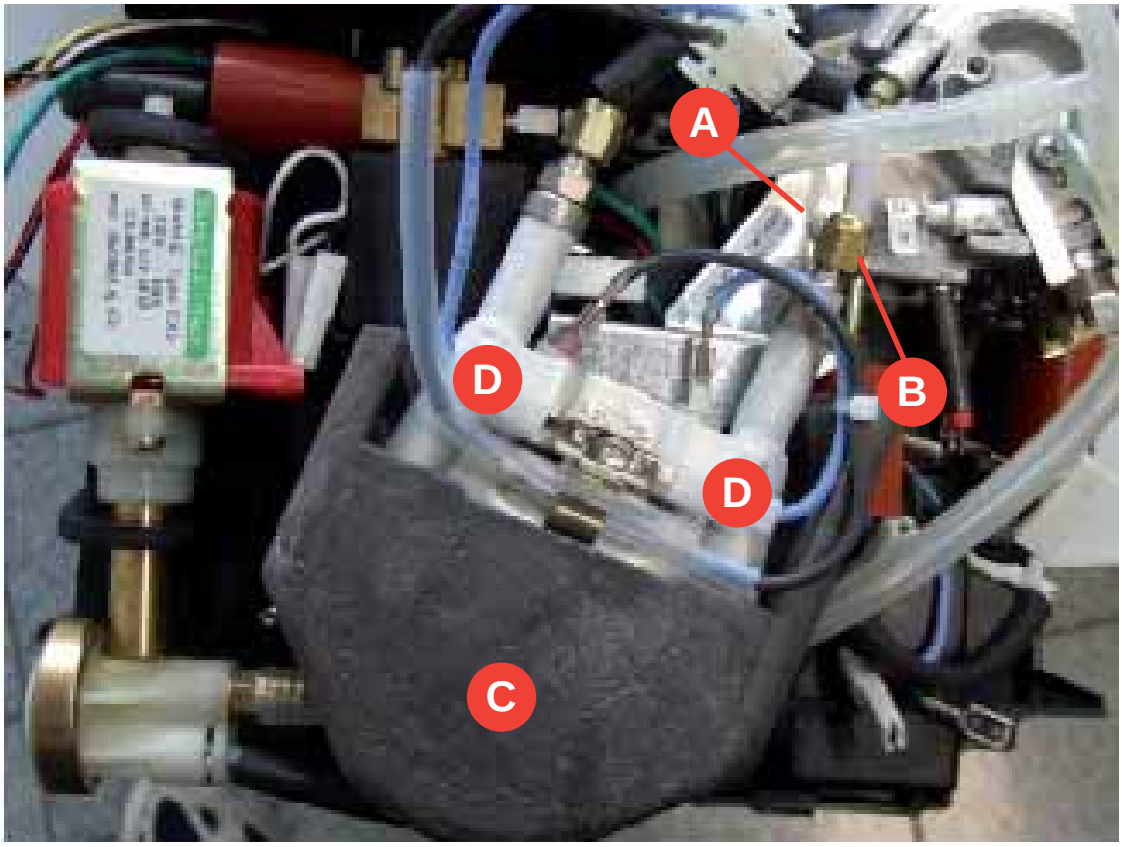
11. Apply grease also to the teeth of the worm gear on the grinder motor shaft.

12. Couple the motor flange with the rest of the unit as shown in the figure.

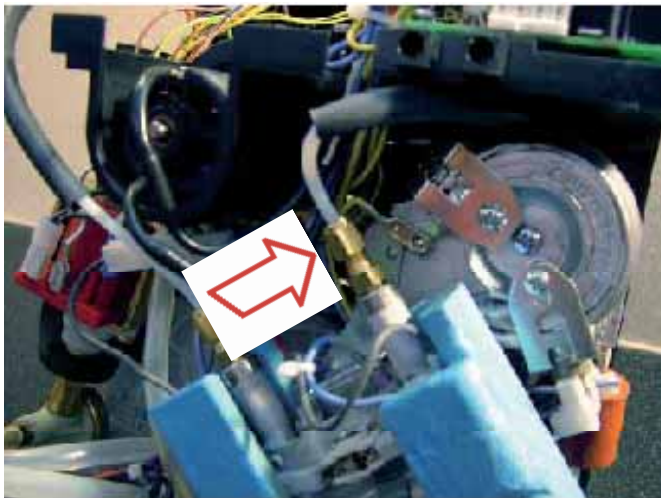
13. Insert the locking pins as shown in the figure and press them fully home.

5.6. REMOVING THE BOILERS

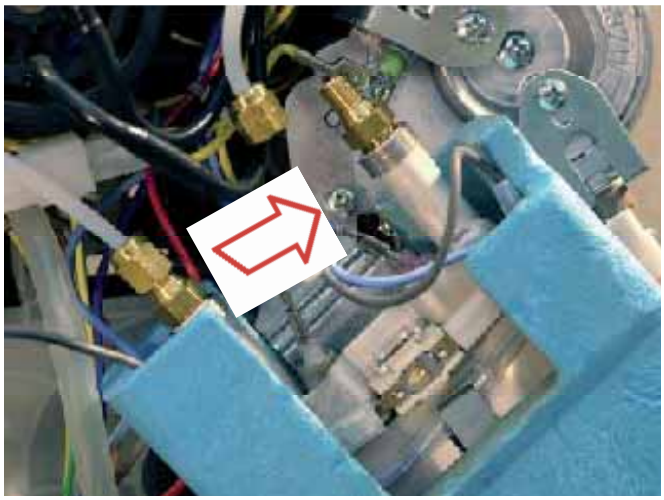
Steam boiler



1. Undo screw “A” and the two nuts “B”. Remove the two Teflon hoses.
   Remove the heating element protection “C” and detach the two Faston connectors “D”.

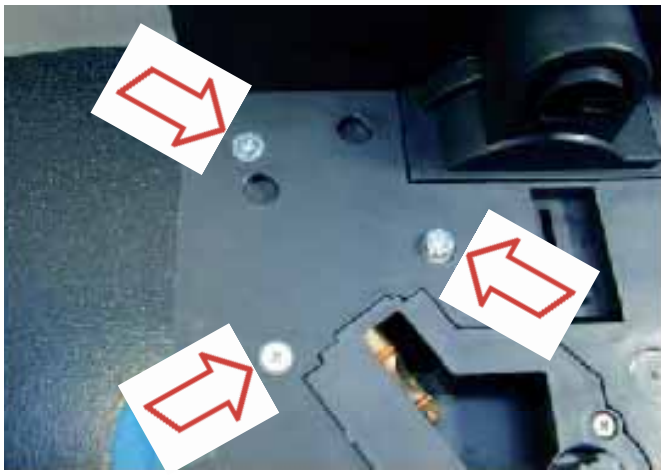


2. To remove the steam boiler unscrew the locknuts and withdraw the Teflon hoses.



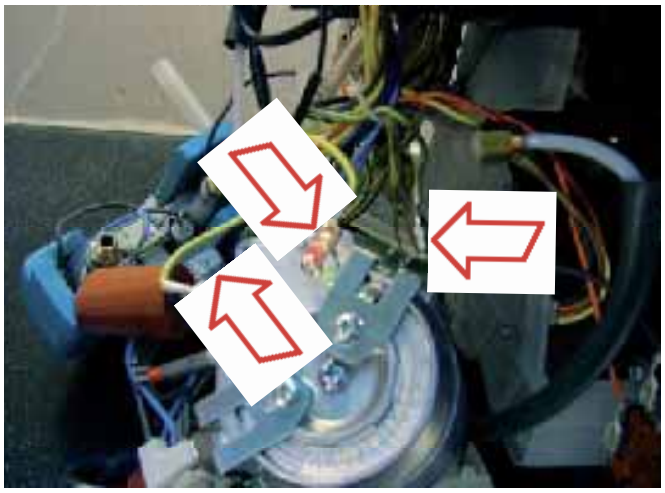
3. Undo the screw shown in the photo

Coffee boiler

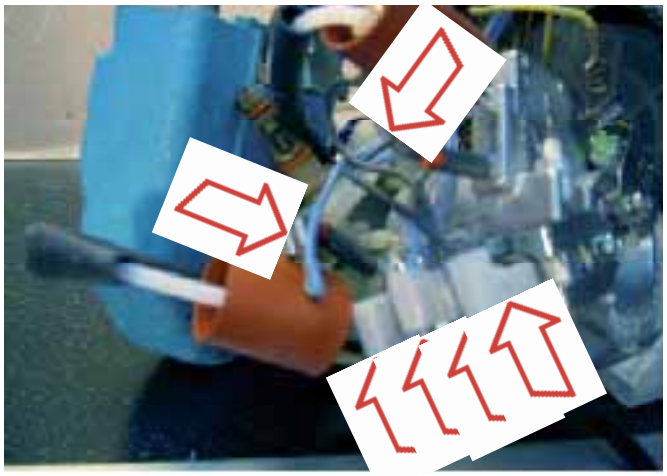


1. To remove the coffee boiler undo the three screws shown in the photo.

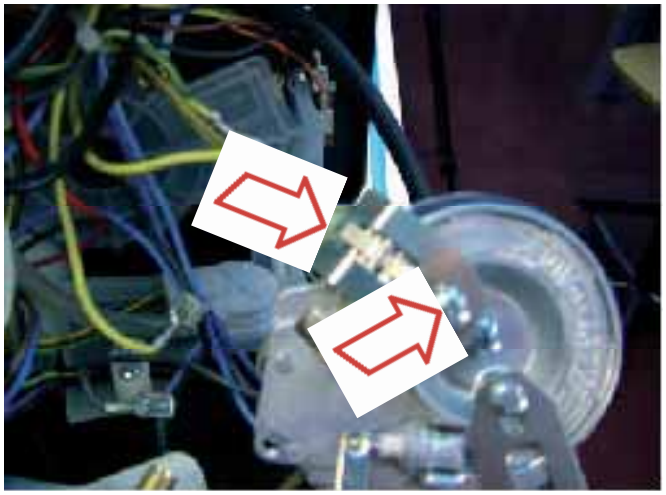
2. Remove the boiler from the plate assy.



3. Remove the 4 Faston connectors from the heating element terminals



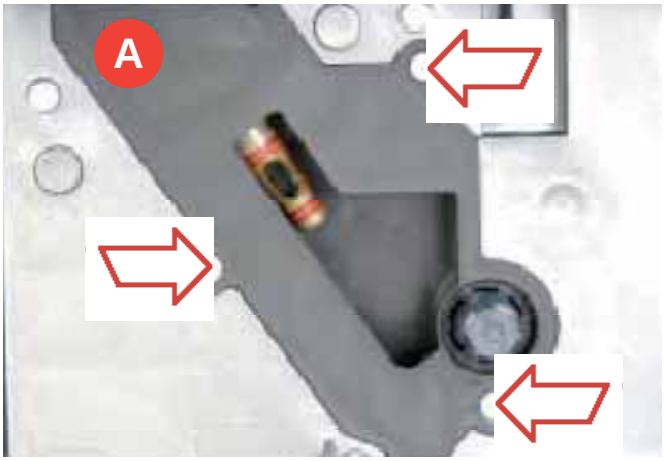
4. Remove the Fastons of the safety thermostats



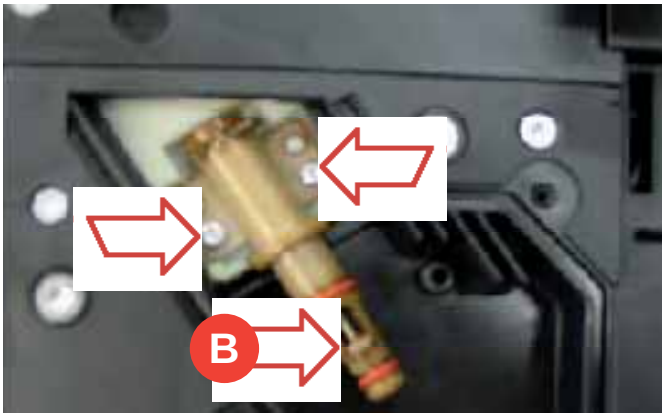
5. To replace the thermostats loosen the screw shown in the figure

6. Remove the fixing clip and remove the Teflon hose that connects the pump to the boiler
7. The photo on the right shows the boiler disassembled from the plate.

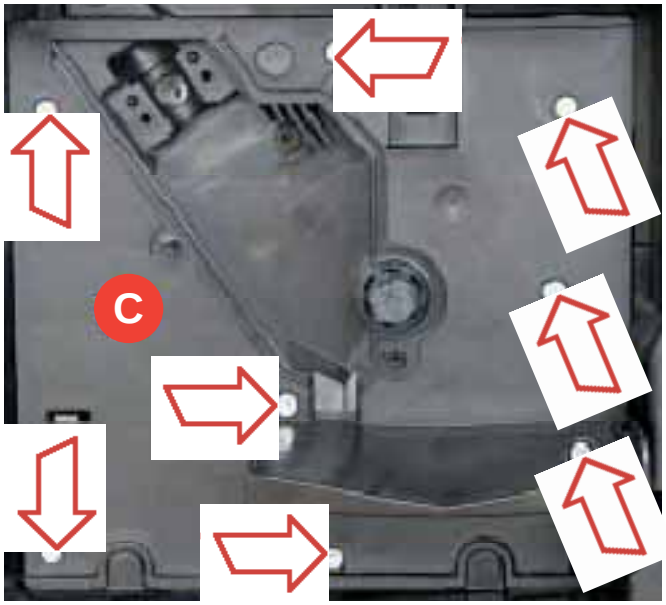
5.7. CHANGING THE GEARMOTOR



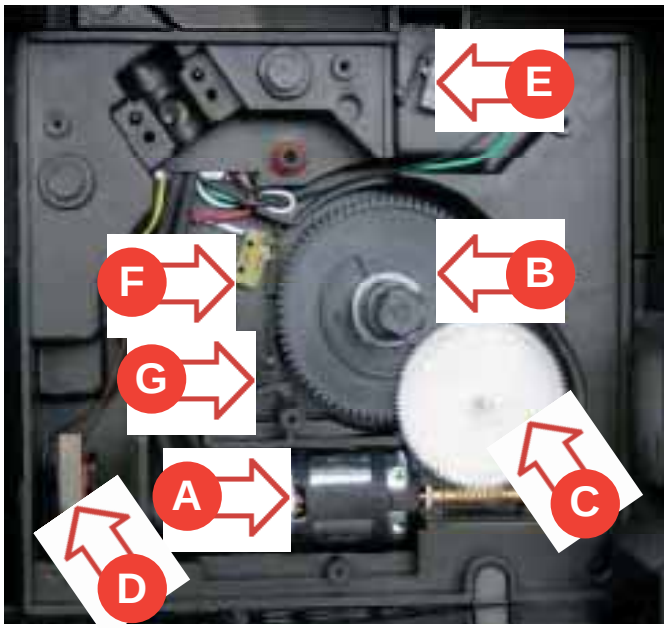
1. Remove cover (A) by undoing the three screws.



2. Undo the two screws and remove boiler spigot (B)



3. Remove protection plate (C) by undoing the screws.



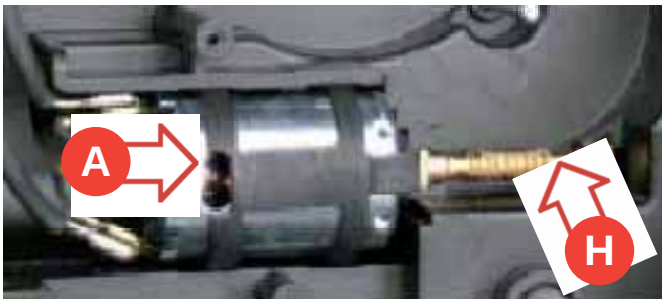
4. The following parts are accommodated inside the compartment protected by the chassis:

- electric motor (A) with gears (B) and (C) for transmission and timing of the brew unit;
- grounds drawer presence microswitch (D);
- brew unit presence microswitch (E);
- microswitch (F) responsible for detecting the rest position of the brew unit;
- microswitch (G), responsible for detecting the delivery phase of the brew unit.

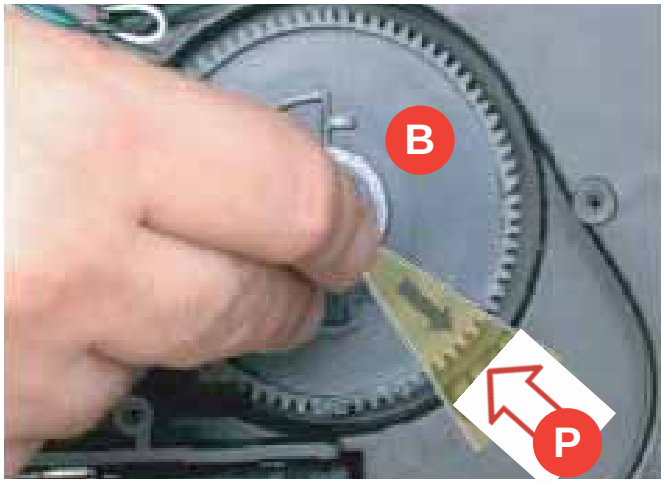
Withdraw gear (C) that meshes with the motor transmission shaft.

Remove the large diameter gear (B).

Pull out motor (A) complete with transmission shaft (H).

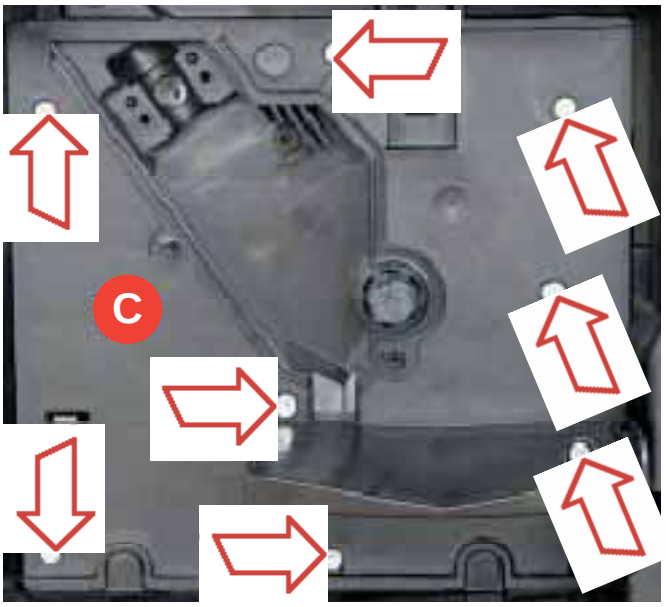


5. Install the motor and drive shaft, fitting guides (L) in their location

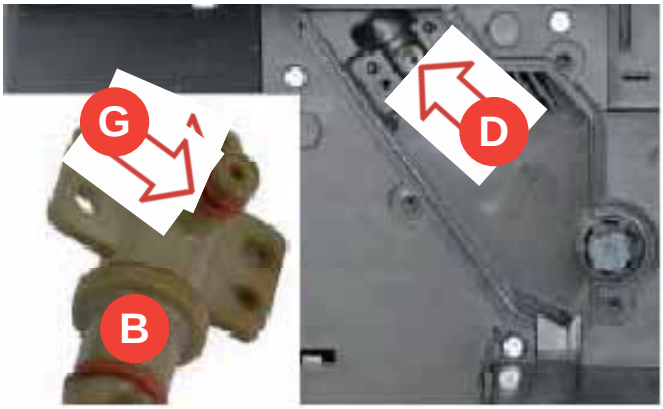


6. Fit gear (B), taking care to ensure that the arrow stamped on the gear is within the opening containing pin (P).

7. Fit the gear that meshes with the transmission shaft.



8. Refit protective cover (C) and secure with the relative screws



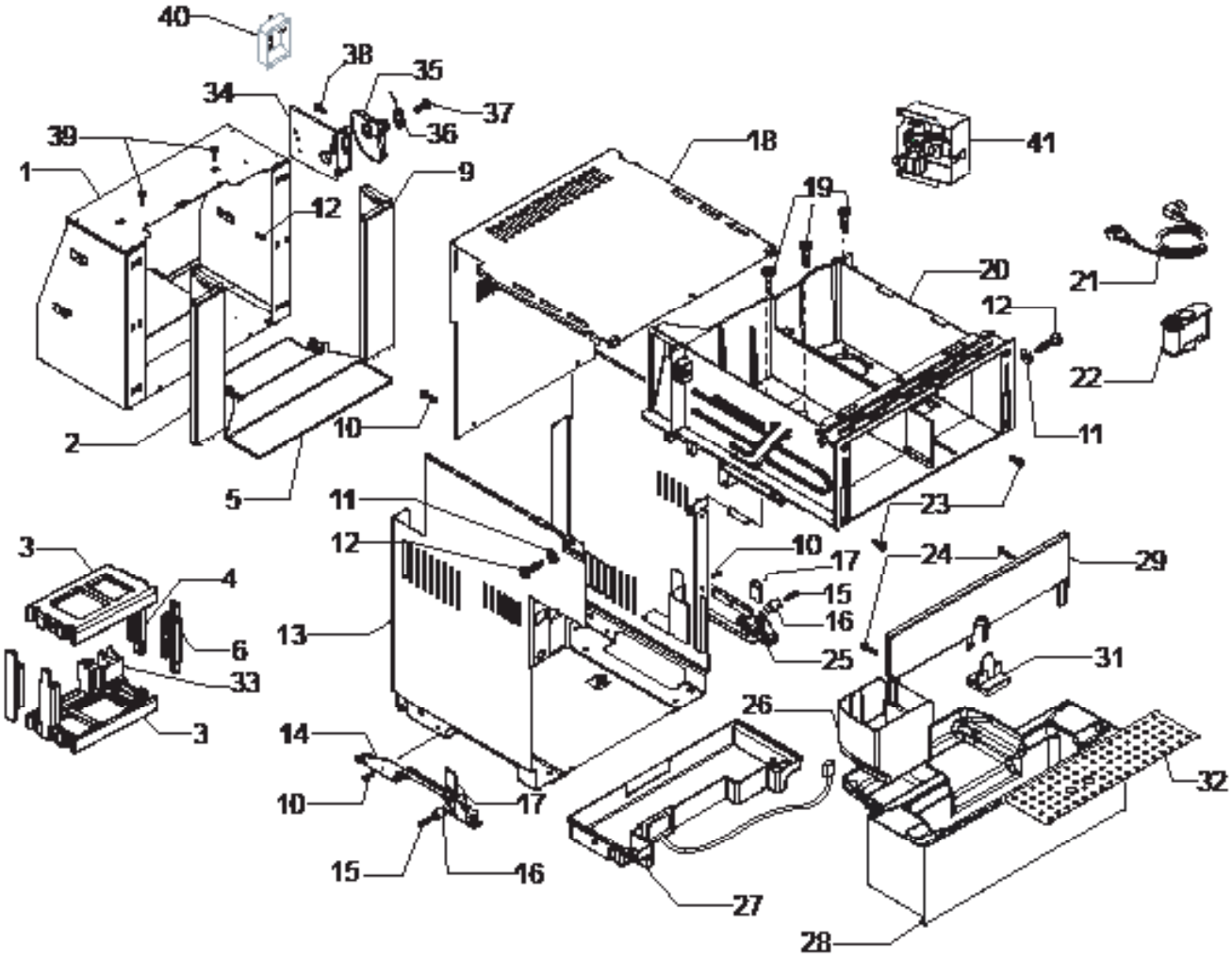
9. Refit boiler spigot (B) taking care to check that both seals (G) are present on the nozzle that is inserted in the bore on pipeline (D).

Tighten the boiler spigot screws.
Warning: snug both screws fully before tightening them

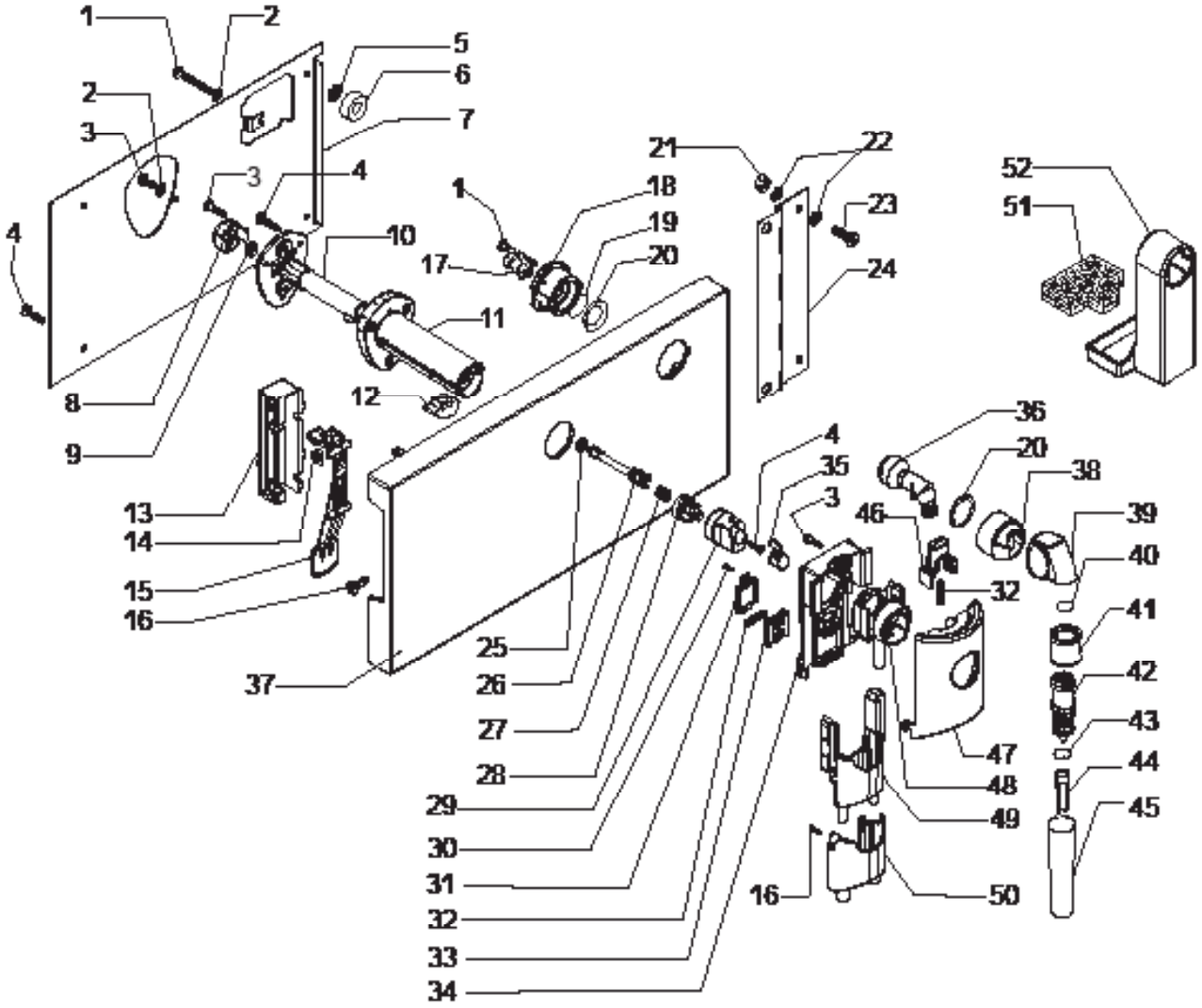
5.8. TROUBLESHOOTING

PROBLEMS	CAUSES	SOLUTIONS
The machine fails to switch on	The machine is disconnected from the power supply	Check the connection to the power supply.
Coffee is insufficiently hot	Cups are cold	Warm cups with hot water.
No hot water or steam supplied	Steam wand blocked	Extract steam wand by pulling downwards and then wash it.
Coffee is delivered too slowly	Coffee grind is too fine	Change coffee blend
	Brew unit dirty	Turn grind adjustment knob to a higher value setting.
		Wash the brew unit.
	SBS system knob turned to right	Turn knob to the left and then to the right , when the machine starts delivering coffee.
Coffee is delivered rapidly	Coffee grind is too coarse	Change coffee blend.
		Set the grind adjuster knob to a lower value.
	SBS system knob turned to left	When the machine starts delivering coffee turn the knob to the right.
The machine takes a long time to heat up and the quantity of water delivered from the wand is limited.	Scale build-up in machine circuit	Perform decalcification procedure.
The brew unit cannot be removed	The brew unit is not in position	Switch the machine on. Close the front door; the unit will return to its initial position and it can be extracted.
	Drip tray fitted.	Remove the drip tray.
Coffee leaks to the exterior of the dispenser.	Dispenser in incorrect position	Repositionthe dispenser.
	Dispenser clogged	Remove the dispenser and wash.
The coffee has insufficient crema	The blend is not suitable or the coffee is not freshly roasted.	Change coffee blend.
	The coffee grind is too coarse	Adjust the grinder settings.
	SBS system knob turned to left	Turn the SBS system knob towards the right.
Water leaking from drip tray	Drip tray too full	Check the position of the float and empty the drip tray.

6. EXPLODED VIEWS

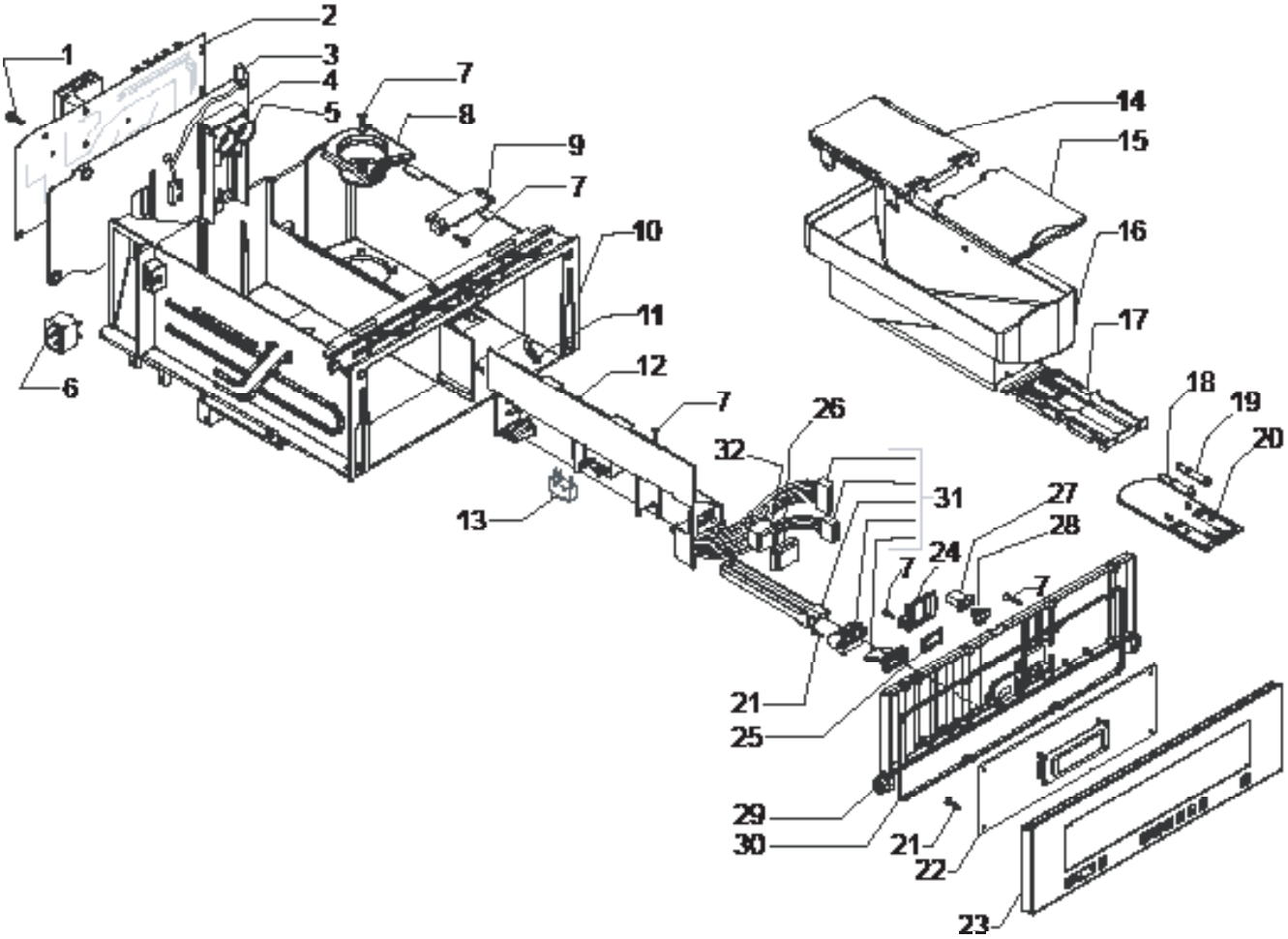


Ref.	description	Ref.	description
0	instruction manual	21	power cable 3x1 ho5rr l=1500
1	coffee machine chassis	22	“aqua prima” water filter
2	coffee machine left upright	23	torx screw, k 30x12
3	enclosure lower/upper insert	24	torx screw, k 30x8
4	enclosure side/rear insert	25	RH handle
5	water recovery tray cover	26	coffee grounds drawer
6	enclosure side/front insert	27	water recovery inner tray assy.
9	coffee machine right upright	28	ariston water recovery tray
10	torx screw, galvanized 2.9x6.5	29	water recovery tray insert
11	washer d11 x 0.8	31	water recovery tray float
12	torx screw, k 35x16	32	water recovery tray grille
13	lower chassis coffee machine	33	enclosure central insert
14	LH handle	34	pin support w/toothed sector
15	water recovery tray fixing pin clip	35	rotation pin
16	water recovery tray fixing pin	36	rotation pin clip
17	water recovery tray fixing pin cap	37	torx screw, k 30x8 wn 1452
18	coffee machine rear panel	38	caphead torx screw, tx10 3.5x8.5
19	torx screw, m 5x20	39	flathead screw, 3.5x9.5 din 7982 s/steel
20	coffee machine containers support		

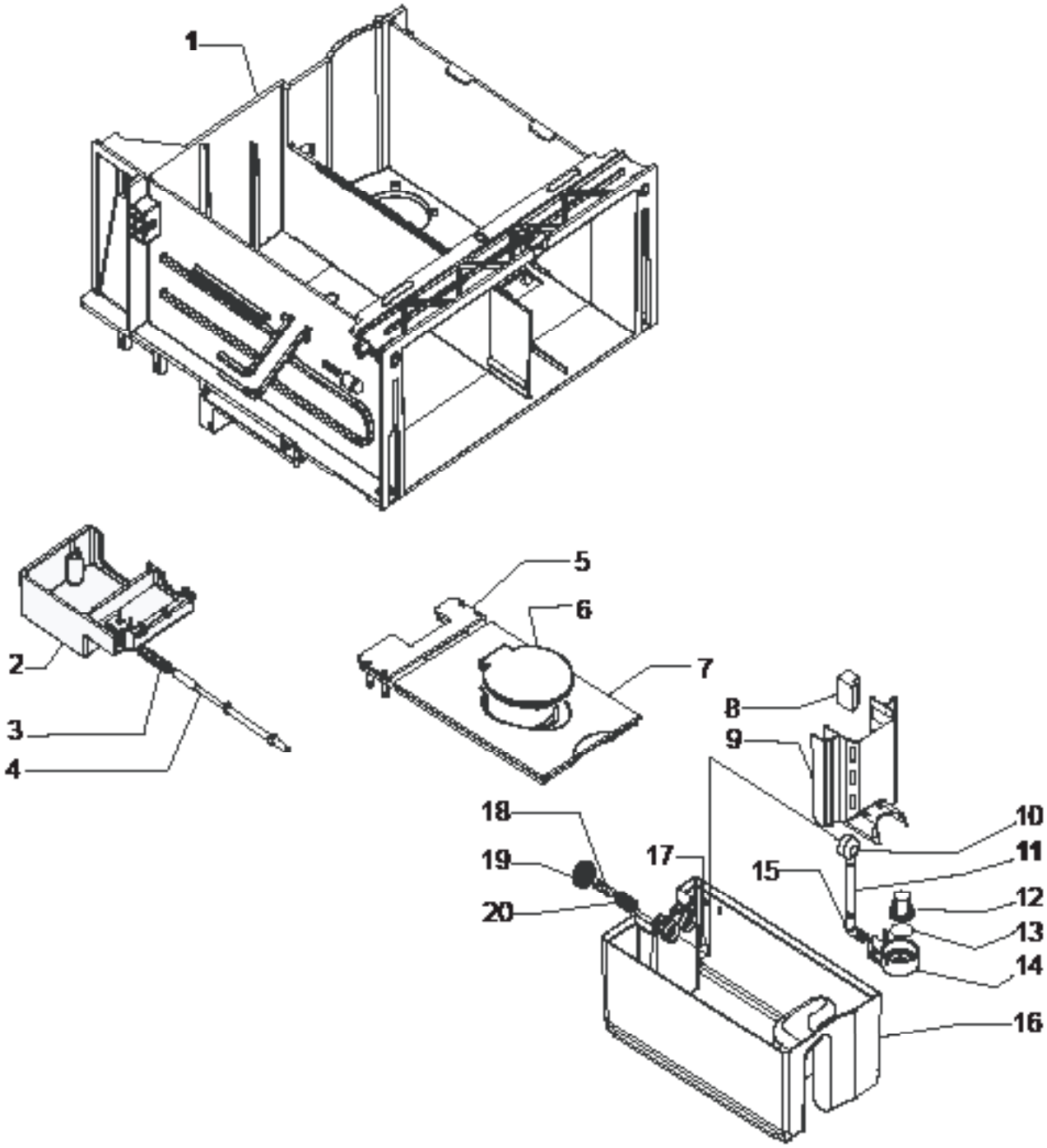


Ref.	description
1	torx screw, m 3x20 iso 14580
2	washer, uni 8842 a3 s/steel
3	torx screw, m 3x8 din 7500
4	torx screw, k 30x8 wn 1452
5	washer, uni 8842 a6
6	door hinge bush
7	door inner plate
8	coffee delivery hose rear plug
9	coffee delivery hose seal
10	coffee delivery hose
11	coffee dispenser support
12	coffee dispenser seal (h2.5)
13	door button support
14	door button clip
15	door button
16	torx screw, k 30x8
17	Teflon hose holder insert
18	joint support
19	O-ring 117 silicone
20	semi-spherical seal
23	torx screw, m 4x10 head d=8x1.5
24	door hinge assy
25	O-ring metric 0040-20
26	crema adjusting rod
27	crema adjusting rod clip

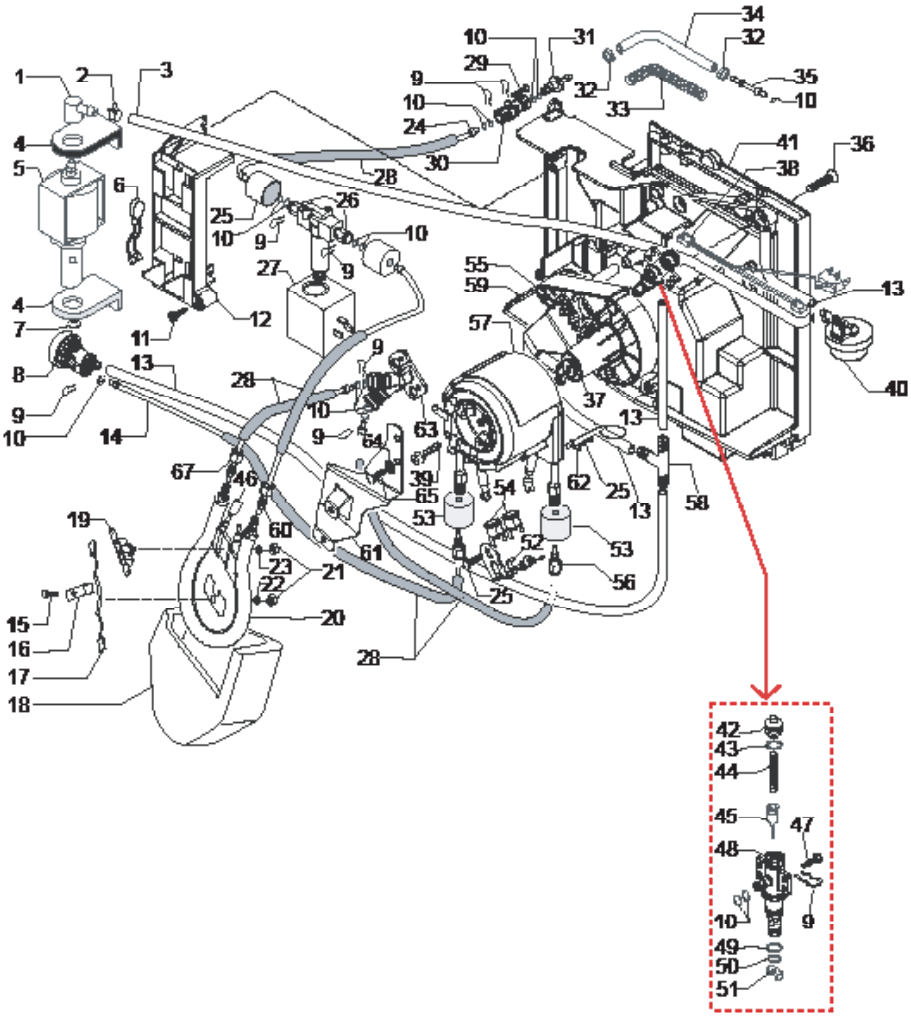
Ref.	description
28	crema adjusting rod support
29	crema adjusting knob
30	torx screw, m 2.5x5 din 7500
31	coffee delivery retaining insert cover
32	spring for coffee dispenser
33	coffee dispenser retaining insert
34	coffee dispenser rear cover
35	crema adjusting knob
36	threaded union for coupling
37	door
38	steam wand fixed ball joint
39	steam wand mobile ball joint
40	O-ring, metric 0060-20
41	steam wand protection
42	upper pipe for ball joint
43	O-ring 108
44	inner lower sleeve
45	sleeve outer cover
46	coffee dispenser button
47	coffee dispenser front cover
48	coffee dispenser inner body
49	coffee dispenser mobile section assy.
50	coffee dispenser mobile section
51	coffee dispenser sponge
52	coffee dispenser sponge support



Ref.	description	Ref.	description
1	torx screw, k 30x8 wn 1452	17	levers support
2	coffee machine main PCB w/connect	18	coffee container LH lever
3	level sensor 2-pin connector assy.	19	coffee container RH lever
4	control PCB protection	20	coffee container closing plate
5	water valve support	21	torx screw, k 25x8 wn 1452
6	tray terminal board	22.	display PCB
7	torx screw, k 30x8	23	coffee machine front panel
8	coffee hopper	24	programmer cover
9	coffee container closing insert	25	programmer cover seal
10	coffee machine containers support	26	switches cover
11	plug for flat cable channel cover	27	push-push button
12	flat cable channel cover	28	front panel insert
13	microswitch	29	front panel support
14	coffee container rear cover	30	front panel support seal
15	coffee container front cover	31	2 flat-cables (10p and 14p) assy.+ seal
16	coffee container	32	dual pole switch

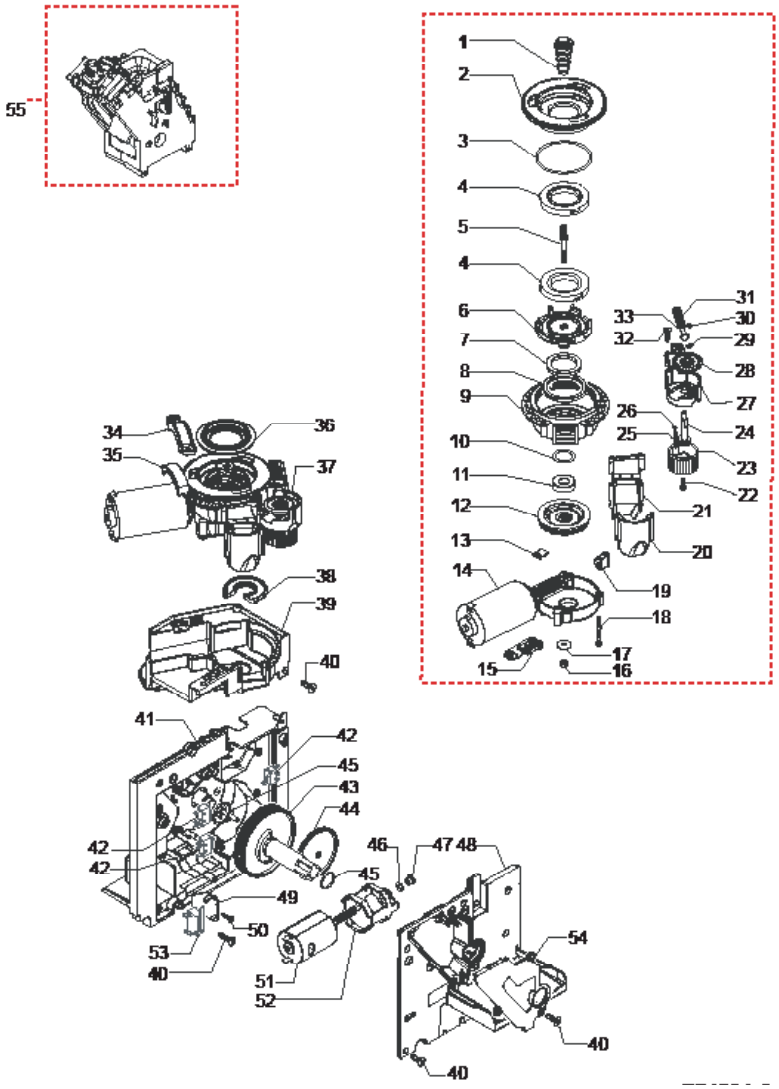


Ref.	description	Ref.	description
1	coffee machine container support	11	Teflon hose 5x7 l=60 mm
2	turbine support	12	water container external filter assy.
3	microswitch pin clip	13	O-ring metric 0019-10
4	front panel rotation pin	14	water filter support
5	water container rear cover	15	water filter support union
6	water container cover	16	water container
7	water container front cover	17	O-ring metric 0060-30
8	float assy, w/magnet	18	water container valve piston
9	float support	19	water valve seal
10	water valve union	20	water container valve cylindrical spring



Ref.	description
1	90° pump inlet union
2	hose clip d=9.5mm
3	silicone hose 5x8 70sr
4	pump support eaton magic
5	ulka pump ep5/s gw 230v-50hz
6	2-pole pump connector
7	O-ring 2031
8	compensation valve assy. and 16 bar relief valve
9	hose clip d=4
10	O-ring 2015 silicone
11	torx screw, k 35x16
12	pump support
13	silicone hose 5x10 60 shore
14	Teflon union-nut-prot. assy. 200mm
15	caphead screw, m4x8 uni 7687
16	fuse holder plate
17	single core silicone lead, blue awg16 100 mm
18	heating element protection
19	thermostat 175°
20	heating element, bleckman 230v
24	Teflon union+protect.2x4 120mm
25	caphead screw, ph/tt 4x8 uni 8112
26	hose union d=4 1/8
27	2-way solenoid valve 1/8" m4 24v 19w
28	black silicone hose 7.5x9.3
29	torx screw, k 35x12 wn 1423
30	straight union w/support
31	straight union
32	hose clamp
33	clip d=7.5 for braided hose 3x7

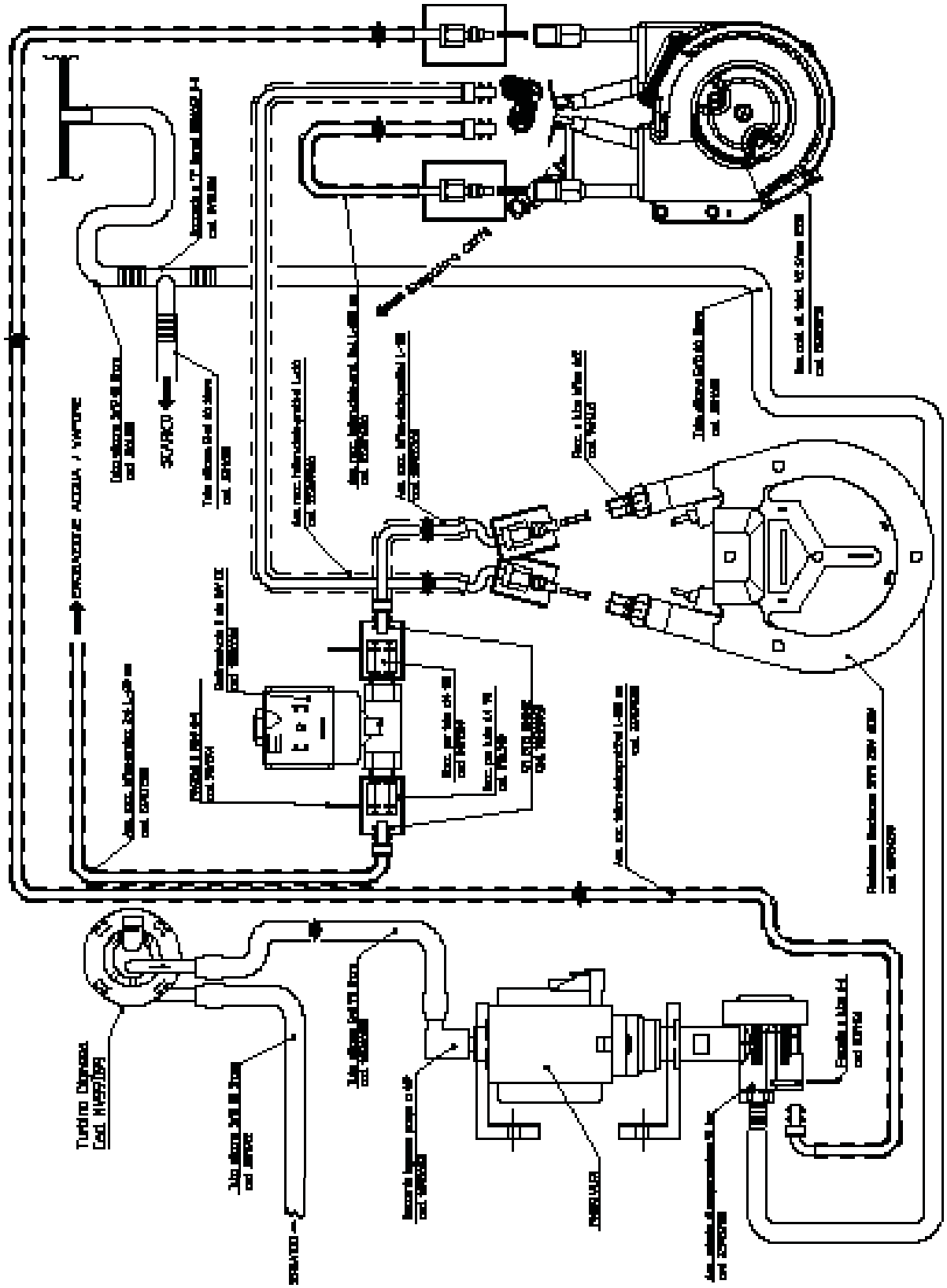
Ref.	description
34	braided silicone hose
35	hose union
36	torx screw, m 5x20
37	nut, metalbloc m5x0.8 din 980
38	wiring+microswitch
39	caphead Allen screw 10.9 m5x20
40	turbine
41	assembly plate w/pin
42	boiler spigot cap
43	O-ring metric 0060-20 silicone
44	needle spring
45	piston w/groove l=20.9
46	silicone hose 5x8
47	torx screw, k 30x12
48	boiler spigot
49	O-ring orm 0090-20
50	O-ring orm 0050-20
51	spool for boiler valve
52	thermostat holder clip
53	spring protection
54	thermostat 175°
56	Teflon union+nut+prot. l=220mm
57	boiler assy. w/out heating element 230v
58	Tee union d8
59	boiler support
60	Teflon union+nut+prot. l=120mm
61	boiler support square
62	temperature sensor - ntc
63	boiler spigot union



Ref.	description	Ref.	description
1	increase screw	29	spindle retaining ring d=3.2
2	coffee grinder upper support	30	ring 4 uni 7434
3	O-ring metric 0530-15	31	grind adjust. worm gear
4	ceramic burr 48x28	32	torx screw, k 35x16
5	increase screw pin m4-m6	33	grind adjust taper pin
6	ceramic burr lower support	34	motor locking flange
7	thrust bearing	35	motor support seal
8	felt ring od=45.4 id=39.4 h=4	36	coffee grinder seal
9	ground coffee outlet support body	37	coffee grinder motor 230v
10	balancing washer 21.8x14x0.25	38	motor antivibration seal
11	radial bearing	39	motor support
12	grinder burr drive gear	40	torx screw, k 35x12 wn 1423
13	coffee grinder pulse sensor	41	assembly plate w/pin
14	coffee grinder motor assy 230v	42	microswitch
15	thermal sensor support	43	assembly plate
16	lock nut m4 din982	44	gear
17	plain washer id=4.3 od=14 thk. =1.5	45	gearmotor mylar washer
18	caphead screw 3.5x30 d.7505	46	bakeliz. washer d=5.5
19	worm gear auger central cap	47	gearmotor bush
20	coffee outlet shroud cover	48	assembly plate cover
21	coffee outlet shroud assy.	49	microswitch support
22	caphead screw m4x8 uni 7687	50	torx screw, k 30x8 wn 1452
23	grind fineness adjuster knob	51	drive motor
24	adjusting pin	52	antivibration mount for motor
25	ball clip	53	microswitch
26	s.steel ball d=3.2mm	54	boiler compartment cover
27	coffee grinding adj. lower support	55	smart coffee unit
28	bevel gear z=39 grind adjust.		

7. APPENDIX:

Water circuit diagram



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